

**CLAIMS**

1. A drive dynamo-electric unit speed controlled compound system including one dynamo-electric unit or a primary and a secondary dynamo-electric unit units or more than two dynamo-electric unit units incorporated with engine or other rotating moment device, and one unit or more than one unit of centrifugal clutch, one-way transmission mechanism or output clutch or related transmission mechanism and manual control interface, central controller and storage device to create specific control pattern and to execute the operation of specific compound power function by selection among those units and control of drive control device operation, is essentially comprised of the following units:
- centrifugal clutches FC101 and FC102: comprised of one centrifugal clutch unit FC101 or of two centrifugal clutch units of FC101 and FC102 being engaged to each other or sharing a same structure, or of a double-acting centrifugal clutch having two independent centrifugal clutch units coupled to each other by means of a transmission device; the structure includes three layers, an inner layer, an intermediate layer and an outer layer, within, the inner layer contains a drive power-locking unit to act outward when the centrifugal force reaches a preset value and is incorporated to draw each other with an output shaft; the intermediate layer incorporated to an engine has a coupling surface or an inner circumference and a drive power-locking unit on its outer side to act outward when the centrifugal force

reaches its preset value so to couple to a power-locking inner circumference from the outer layer to execute the function of an output clutch, and the outer layer also incorporated to the output shaft so to temporarily cut off linkage to a load when the engine runs at low rpm;

- one-way transmission mechanism SWC101: comprised of various known mechanisms that execute one-way transmission to be directly provided or jointly provided with other transmission mechanism between a primary dynamo-electric unit E101 and a steering shaft S103 driven by an engine ICE101 for the steering shaft S103 driven by the engine ICE101 to transmit at a pre-selected rotation direction in relation to the rotation part of the primary dynamo-electric unit E101; on the contrary, to execute idling to interrupt the power transmission; if the engine ICE101 drives clockwise (CW), the steering shaft S102 transmits power to the primary dynamo-electric unit E101; and counterclockwise (CCW), to interrupt the power transmission; meanwhile, if the primary dynamo-electric unit E101 drives counterclockwise (CCW), the steering shaft S102 drives the engine ICE101 in opposite direction; and clockwise (CW), to interrupt the power transmission. With the selection of the direction for the one-way transmission mechanism SWC101, the rotation direction of and whether the transmission to be continued or interrupted between the engine ICE101 and the primary dynamo-electric unit E101 is selected

as the case may be; the one-way transmission mechanism SWC101 is independently provided or provided at the same time with the centrifugal clutch FC101 for the system to indicate various compound power  
5 characteristics; as required, the relative locations between the one-way transmission mechanism SWC101 and the centrifugal clutch FC101 has the centrifugal clutch FC101 provided at where close to the side of the steering shaft S103 of the engine ICE101 and the  
10 one-way transmission mechanism provided at where close to the side of the primary dynamo-electric unit E101 or the centrifugal clutch; or has both of the centrifugal clutch FC101 and the one-way transmission mechanism SWC101 provided at where between the steering shaft S103 of the engine ICE101 and the rotation part of the primary dynamo-electric unit while both of the centrifugal clutch FC101 and the one-way transmission mechanism SWC101 is separately  
15 provided or sharing the same structure;

20 - primary dynamo-electric unit E101: essentially functioning as a motor and also as a secondary generator, related to a secondary motor of series excitation or pilot compound type secondary dynamo-electric unit with dynamo-electric unit characteristics that the speed becomes higher when the load gets smaller; or an AC or DC brush or brushless device that executes amperage control (including control of constant current) for the input electric energy to generate kinetic energy of rotation  
25 mechanical that increases torque as the load increases,

30

- or to other AC or DC, brush or brushless, synchronous or asynchronous inner rotor or outer rotor rotation dynamo-electric unit;
- secondary dynamo-electric unit E102: essentially functioning as a generator and also as a secondary motor, comprised of an inner rotor or outer rotor rotation dynamo-electric unit generates AC or DC, brush or brushless, synchronous or asynchronous energy to convert kinetic energy of rotation mechanical into electric energy;
- engine ICE101: comprised of various known internal combustion engine and its related start-up and operation speed control device and peripheral interface devices including fuel system, air inlet & exhaust system, ignition system and cooling system to directly drive the steering shaft S103 or by way of fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T104;
- the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104: an optional mechanism comprised of various known coaxial or non-coaxial transmission, e.g. a fixed ratio speed or stage or stageless variable transmission mechanism comprised of a gear set, belt gear set or sprocket gear set or power-locking gear set;
- fixed or variable speed ratio or variable steering transmission or planetary transmission mechanisms T101, T102, T103: a structure to execute variable

DEPARTMENT OF DEFENSE

speed ratio or steering function, comprised of gear set, chain and sprocket gear set, power-locking gear set, planetary gear set, or other stage or variable, manual or automatic shift transmission mechanism;

the transmission mechanism is optional;

- output clutches CL101, CL301: an optional mechanism comprised of output clutches connected in series between the steering shaft S104 on load side and the load controlled by manual, mechanical, electromagnetic or hydraulic or centrifugal force;
  - differential gear set DG: an optional mechanism comprised of gear or power-locking gear to receive rotation kinetic energy inputted by a steering shaft S105 for driving two differential steering shafts S105R and S105L;
  - storage discharging device ESD101: comprised of a (dis) chargeable secondary battery or super capacitor;
  - central control unit CCU101: comprised of mechanical-electric or solid-state electronic device, or a digital or analog central control circuit comprised of a micro-processor and its related software to be subject operation and setup by a manual control interface M101 to control the operation of the system;
  - drive control device CD101: controlled by the manual control interface M101 and the central control unit CCU101 to operate both dynamo-electric units functioning as motors to execute control of startup, stop, speed variation or positive/negative rotation

and torque; or as generators to control power generation voltage, amperage, frequency and power performance, charging electric energy inputted to the storage discharging device ESD101 and electric energy outputted from the storage discharging device ESD101; and

- manual control interface M101: related to a digital or analog manual control interface comprised of mechanical-electric or solid-state electronic circuit to control the operation of the system via the central control unit CCU101 by manual operation; by combining those devices and mechanisms described above, the present invention executes some of or all the following functions:

(1) the primary dynamo-electric unit functioning as a starting motor, draws the activating side of the centrifugal clutch to close it and start the engine;

(2) the secondary dynamo-electric unit functioning as a starting motor, starts the engine;

(3) once the engine starts, the load is driven by controlling the operation of the centrifugal clutch or the manual, mechanical or electromagnetic or hydraulic force controlled power-locking or hydraulic force coupled type clutch;

(4) in addition to driving the load, the running engine continues to draw the secondary dynamo-electric unit to operate as a generator for driving the primary dynamo-electric unit to jointly drive the

load or to charge the storage discharging device ESD101;

(5) the engine is running to drive the load while the primary dynamo-electric unit functioning as a motor with electric energy supplied from the storage discharging device ESD101 to jointly drive the load;

5

(6) during the down time of the primary dynamo-electric unit, the engine runs to drive the secondary dynamo-electric unit to function as a generator so to charge the storage discharging device ESD101 or output electric energy to other loads;

10

(7) the running engine drives the secondary dynamo-electric unit to generate power for driving the primary dynamo-electric unit to further drive the load or to simultaneously charging the batteries or to output electric energy to other loads;

15

(8) the primary dynamo-electric unit drives the load at low speed as controlled by the electric energy supplied from the storage discharging device via a drive control device while the engine is not running;

20

(9) the electric energy drive status including the generation braking either by the primary or the secondary dynamo-electric units or both at the same time, the engine becomes a braking resistance as drawn by the closed centrifugal clutch once the sliding speed exceeds the preset value; or

25

30

(10) any related functions provided by other structures as described above.

2. A drive dynamo-electric unit speed controlled compound system as claimed in Claim 1, wherein, its operation patterns essentially comprised of:

5           A1: with the system standby and the engine not running, the manual control interface M101 is starts acceleration on the system, the primary dynamo-electric unit E101 is started to execute low speed drive operation to drive  
10           the load until the centrifugal clutch FC101 is closed to start the engine as drawn by the centrifugal clutch FC101 for the secondary dynamo-electric unit E102 either engages in generation output or stops generation as required;

15           Once the manual control interface M101 is executing acceleration on the throttle of the engine and a centrifugal clutch FC102 is provided for the system, the centrifugal clutch FC102 is closed to draw the steering shaft S104 on the load side thus to drive the load; or  
20           the closed centrifugal clutch FC101 is used to draw the steering shaft S104 on the load side to further drive the load; as the manual control interface M101 increases to accelerate the throttle, the engine rpm is further promoted to increase the power to drive the load, the primary dynamo-electric unit E101 may stop transmitted power or convert to function as a generator, or to input electric energy to operate as a motor to provide parallel pilot kinetic energy for the engine ICE101.  
25

30           A2: With the system standby, the engine also is standby at low speed or is driving a peripheral load, e.g. air

00000000000000000000000000000000

conditioner or secondary air pump, the secondary dynamo-electric unit E102 executes generation output or stops generation;

When the manual control interface M101 starts to  
5 accelerate the system, the primary dynamo-electric unit E101 is activated to execute drive operation at low speed to drive the load;

Once the manual control interface M101 performs acceleration drive on the primary dynamo-electric unit  
10 E101 by controlling the electric energy supplied from the storage discharging device ESD101 or a generator, the manual control interface M101 synchronously accelerates the throttle on the engine; if the system is provided with a centrifugal clutch FC102, the engine rpm increases until the centrifugal clutch FC102 is closed to draw the steering shaft S104 on the load side, thus to drive load, or the centrifugal clutch FC102 connects the engine in parallel to drive the load when the primary dynamo-electric unit E101 accelerates until the  
15 centrifugal clutch FC101 is closed;

As the manual control interface M101 increases to accelerate the throttle, the engine rpm is further promoted to increase the power to drive the load, the primary dynamo-electric unit E101 may stop transmitted power or convert to function as a generator, or to input electric energy to operate as a motor to provide parallel pilot kinetic energy for the engine ICE101;  
25

A3: With the system standby, the engine also is standby at constant speed or is driving a peripheral load, e.g.  
30 air conditioner or secondary air pump, the secondary

dynamo-electric unit E102 executes generation output or stops generation;

when the manual control interface M101 starts to accelerate the system by controlling the electric energy supplied from the storage discharging device ESD101 or a generator, the manual control interface M101 synchronously accelerates the throttle on the engine; if the system is provided with a centrifugal clutch FC102, the engine rpm increases until the centrifugal clutch FC102 is closed to draw the steering shaft S104 on the load side, thus to drive load, or the centrifugal clutch FC102 connects the engine in parallel to drive the load when the primary dynamo-electric unit E101 accelerates until the centrifugal clutch FC102 is closed.

15       3. A drive dynamo-electric unit speed controlled compound system as claimed in Claim 1, wherein, an application system by means of centrifugal clutch as the drive control is essentially comprised of a centrifugal clutch FC101 provided between a steering shaft S103 driven by an engine ICE101 and another steering shaft on the load side S104 for controlling both of the steering shaft S103 and another steering shaft S104 on the load side to couple or interrupt transmission; within, the steering shaft S103 driven by the engine ICE101 is coupled to the driven draw side of the centrifugal clutch FC101 while another steering shaft S104 on the load side is coupled to the drive draw side of the centrifugal clutch FC101 so that once the steering shaft S104 on the load side reaches the preset rpm, it drives to close the centrifugal clutch FC101, thus to draw the steering shaft S103 which is

directly driven by the engine ICE101 or through a fixed speed ratio or variable speed ratio, or variable steering device or planetary transmission mechanism T104; the steering shaft S104 on the load side is provided to drive the load, and a fixed speed ratio or variable speed ratio or variable steering transmission mechanism T102 is provided to the steering shaft S104 on the load side to engage in mutual transmission with a primary dynamo-electric unit E101;

- the load side steering shaft S104: is directly outputted to the load, or alternatively, to an output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the load; or as required, to execute single shaft output through a fixed speed ratio or variable speed ratio, variable steering transmission or planetary transmission mechanism T103, then through a steering shaft S105; or an optional transmission mechanism comprised of a differential gear set DG for differential output through two units of differential steering shafts S105R and S105L;

- the engine ICE101: comprised of various known internal combustion engine and its related start-up and operation speed control device and peripheral interface devices including fuel system, air inlet & exhaust system, ignition system and cooling system to directly drive the steering shaft S103 or by way of fixed speed ratio or variable speed ratio or variable steering transmission mechanism or

- FCCID:2AB7F-BB50
- planetary transmission mechanism T104;
- the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104: an optional mechanism comprised of various known coaxial or non-coaxial transmission, e.g. a fixed ratio speed or stage or stageless variable transmission mechanism comprised of a gear set, belt gear set or sprocket gear set or power-locking gear set;
  - the primary dynamo-electric unit E101: essentially functioning as a motor and also as a secondary generator, related to a secondary motor of series excitation or pilot compound type secondary dynamo-electric unit with dynamo-electric unit characteristics that the speed becomes higher when the load gets smaller; or an AC or DC brush or brushless device that executes amperage control (including control of constant current) for the input electric energy to generate kinetic energy of rotation mechanical that increases torque as the load increases, or to other AC or DC, brush or brushless, synchronous or asynchronous inner rotor or outer rotor rotation dynamo-electric unit; the primary dynamo-electric unit E101 is coupled to the load side steering shaft S104 and to the drive draw side of the centrifugal clutch FC101 by means of a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T102; and
  - the secondary dynamo-electric unit E102: essentially functioning as a generator and also as a secondary

motor, comprised of an inner rotor or outer rotor rotation dynamo-electric unit generates AC or DC, brush or brushless, synchronous or asynchronous energy to convert kinetic energy of rotation  
5 mechanical into electric energy; the secondary dynamo-electric unit E102 is coupled to the steering shaft S103 driven by the engine ICE101 and the driven draw side of the centrifugal clutch FC102 by means of a fixed or variable speed ratio or variable steering  
10 transmission or planetary transmission mechanism T101, or the secondary dynamo-electric unit E102 is directly coupled to the steering shaft S103 of the engine;

15 the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim  
20 2 or other specific operation pattern.

4. A drive dynamo-electric unit speed controlled compound system as claimed in Claim 1, wherein, an application system by means of centrifugal clutch as the drive control  
25 is essentially comprised of having connected in series a centrifugal clutch FC101 then another centrifugal clutch FC102 between the steering shaft S103 and the drive load side steering shaft S104 of the engine ICE101; the double acting centrifugal clutches FC101 and FC102 form

00000000000000000000000000000000

to each other or integrated into a 3-layer structure containing an inner layer, an intermediate layer and an outer layer; within, the inner layer and the inner side of the intermediate layer form the centrifugal clutch 5 FC101, the inner layer incorporated to the load side steering shaft S104 drawn to each other is provided with a drive power-locking unit to act outward when the centrifugal force reaches a preset value; the outer side of the intermediate layer and the inner side of the outer 10 layer form the centrifugal clutch FC102; the intermediate layer being coupled to the steering shaft S103 driven by the engine having its inner side provided with circumferential coupling surface for power-locking and its outer side provided with a drive power-locking unit 15 acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; and the outer layer is also incorporated to the load side steering shaft S104 so to provide linkage with the load when the engine runs 20 at low rpm or is temporarily cut off; the steering shaft S103 either directly driven or driven through a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission 25 mechanism T104 by the engine is coupled to the driven draw side of the centrifugal clutch FC101 and the load side steering shaft S104 to the drive draw side of the centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the steering 30 shaft S103 driven by the engine ICE101 when the load side

steering shaft S104 reaches its preset rpm; alternatively,  
a fixed speed ratio or variable speed ratio, or variable  
steering transmission mechanism or planetary  
transmission mechanism T102 is provided on the load side  
5 steering shaft S104 to engage mutual transmission with  
the primary dynamo-electric unit;

- the load side steering shaft S104: is directly  
outputted to the load, or alternatively, to an output  
clutch CL101 controlled by manual, mechanical,  
10 electromagnetic, hydraulic or centrifugal force  
before being outputted to the load; or as required,  
to execute single shaft output through a fixed speed  
ratio or variable speed ratio, variable steering  
transmission or planetary transmission mechanism  
15 T103, then through a steering shaft S105; or an  
optional transmission mechanism comprised of a  
differential gear set DG for differential output  
through two units of differential steering shafts  
S105R and S105L;

20 - the engine ICE101: comprised of various known internal  
combustion engine and its related start-up and  
operation speed control device and peripheral  
interface devices including fuel system, air inlet  
& exhaust system, ignition system and cooling system  
25 to directly drive the steering shaft S103 or by way  
of fixed speed ratio or variable speed ratio or  
variable steering transmission mechanism or  
planetary transmission mechanism T104;

- the fixed or variable speed ratio or variable steering  
30 transmission or planetary transmission mechanism

- T104: an optional mechanism comprised of various known coaxial or non-coaxial transmission, e.g. a fixed ratio speed or stage or stageless variable transmission mechanism comprised of a gear set, belt gear set or sprocket gear set or power-locking gear set,
- the primary dynamo-electric unit E101: essentially functioning as a motor and also as a secondary generator, related to a secondary motor of series excitation or pilot compound type secondary dynamo-electric unit with dynamo-electric unit characteristics that the speed becomes higher when the load gets smaller; or an AC or DC brush or brushless device that executes amperage control (including control of constant current) for the input electric energy to generate kinetic energy of rotation mechanical that increases torque as the load increases, or to other AC or DC, brush or brushless, synchronous or asynchronous inner rotor or outer rotor rotation dynamo-electric unit; the primary dynamo-electric unit E101 is coupled to the load side steering shaft S104 and to the drive draw side of the centrifugal clutch FC101 by means of a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T102; and
- the secondary dynamo-electric unit E102: essentially functioning as a generator and also as a secondary motor, comprised of an inner rotor or outer rotor rotation dynamo-electric unit generates AC or DC, brush or brushless, synchronous or asynchronous

5

energy to convert kinetic energy of rotation mechanical into electric energy; the secondary dynamo-electric unit E102 is coupled to the steering shaft S103 driven by the engine ICE101 and the driven draw side of the centrifugal clutch FC102 by means of a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T101, or the secondary dynamo-electric unit E102 is directly coupled to the steering shaft S103 of the engine;

10

15

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, and the drive control device CD101 and the storage discharging device ESD101; the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation.

20 5. A drive dynamo-electric unit speed controlled compound system as claimed in Claim 1, wherein, an application system by means of centrifugal clutch as the drive control is essentially comprised of having coupled to an intermediate steering shaft S102 the fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T102, the power-locking coupling surface on the outer circumference of the double-acting centrifugal clutch FC101 and the outer circumference power-locking surface of the double-acting centrifugal clutch FC102 as claimed

25

30

5

10

15

20

25

30

in Claim 4; those double-acting centrifugal clutches are comprised of two units of centrifugal clutches FC101 and FC102 incorporated to each other forming a three-layer structure containing the inner, the intermediate and the outer layers. Within, the inner layer and the inner side of the intermediate layer form the centrifugal clutch FC101, the inner layer and the inner side of the intermediate layer incorporated to the intermediate steering shaft S102 drawn to each other is provided with a drive power-locking unit to act outward when the centrifugal force reaches a preset value; the outer side of the intermediate layer and the inner side of the outer layer form the centrifugal clutch FC102; the intermediate layer being coupled to the steering shaft S103 driven by the engine having its inner side provided with circumferential coupling surface for power-locking and its outer side provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; and the outer layer is also incorporated to the intermediate steering shaft S102 so to provide linkage with the load when the engine runs at low rpm or is temporarily cut off; the steering shaft S103 either directly driven or driven through a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 by the engine is coupled to the driven draw side of the centrifugal clutch FC101 and the intermediate steering shaft S102 to the drive draw

side of the centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the steering shaft S103 driven by the engine ICE101 when the intermediate steering shaft S102 reaches its preset rpm;

- the intermediate steering shaft S102: is directly outputted to the load, or alternatively, to an output clutch CL301 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the load; or as required, to execute single shaft output through a fixed speed ratio or variable speed ratio, variable steering transmission or planetary transmission mechanism T103, then through a steering shaft S105; or an optional transmission mechanism comprised of a differential gear set DG for differential output through two units of differential steering shafts S105R and S105L; the additional output clutch CL301 is provided between the intermediate steering shaft S102 and the load side steering shaft S104 with both steering shafts driven by the power-locking coupling surfaces on the inner and outer circumferences of the double-acting centrifugal clutches FC101 and FC102;

- the engine ICE101: comprised of various known internal combustion engine and its related start-up and operation speed control device and peripheral interface devices including fuel system, air inlet & exhaust system, ignition system and cooling system to directly drive the steering shaft S103 or by way of fixed speed ratio or variable speed ratio or

- CONFIDENTIAL
- variable steering transmission mechanism or planetary transmission mechanism T104;
- the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104: an optional mechanism comprised of various known coaxial or non-coaxial transmission, e.g. a fixed ratio speed or stage or stageless variable transmission mechanism comprised of a gear set, belt gear set or sprocket gear set or power-locking gear set;
- the primary dynamo-electric unit E101: essentially functioning as a motor and also as a secondary generator, related to a secondary motor of series excitation or pilot compound type secondary dynamo-electric unit with dynamo-electric unit characteristics that the speed becomes higher when the load gets smaller; or an AC or DC brush or brushless device that executes amperage control (including control of constant current) for the input electric energy to generate kinetic energy of rotation mechanical that increases torque as the load increases, or to other AC or DC, brush or brushless, synchronous or asynchronous inner rotor or outer rotor rotation dynamo-electric unit; the primary dynamo-electric unit E101 is coupled to the intermediate steering shaft S102, which in turn incorporated to the centrifugal clutch FC101 by means of a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T102; and
- the secondary dynamo-electric unit E102: essentially

PROPRIETARY INFORMATION

functioning as a generator and also as a secondary motor, comprised of an inner rotor or outer rotor rotation dynamo-electric unit generates AC or DC, brush or brushless, synchronous or asynchronous energy to convert kinetic energy of rotation mechanical into electric energy; the secondary dynamo-electric unit E102 is coupled to the centrifugal clutch FC101 and the steering shaft S103 of the engine ICE101 by means of a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T101, or the secondary dynamo-electric unit E102 is directly coupled to the steering shaft S103 of the engine; the combination of those structures described above for the system subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101 provides the same functions as those as claimed in Claim 4 when the output clutch CL301 is closed; and additional functions when the output clutch CL301 is disengaged, including functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other operation pattern.

6. A drive dynamo-electric unit speed controlled compound system as claimed in Claim 1, wherein, an application system by means of centrifugal clutch as the drive control is essentially comprised of having the dynamo-electric unit E101 and the load side steering shaft S104 to indicate coaxial structure; a structure of the double-acting

PROCESSED BY AUTOMATIC DATA PROCESSING SYSTEM

centrifugal clutches FC101 and FC102 provided between  
the dynamo-electric unit E101 and the engine ICE101 has  
its inner layer and outer layer incorporated to the load  
side steering shaft S104 coupled to the output shaft of  
5 the primary dynamo-electric unit E101 and its  
intermediate layer incorporated to the steering shaft  
S103 driven by the engine ICE101; the double-acting  
centrifugal clutches are comprised of two centrifugal  
FC101 and FC102 incorporated to each other forming a  
10 three-layer structure containing the inner, the  
intermediate and the outer layers; within, the inner layer  
and the inner side of the intermediate layer form the  
centrifugal clutch FC101, the inner layer and the inner  
side of the intermediate layer incorporated to the  
15 intermediate steering shaft S102 drawn to each other is  
provided with a drive power-locking unit to act outward  
when the centrifugal force reaches a preset value; the  
outer side of the intermediate layer and the inner side  
of the outer layer form the centrifugal clutch FC102;  
20 the intermediate layer being coupled to the steering shaft  
S103 driven by the engine having its inner side provided  
with circumferential coupling surface for power-locking  
and its outer side provided with a drive power-locking  
unit acting outward when the centrifugal force reaches  
25 its preset value performs the functions as an output  
clutch with the power-locking circumferential coupling  
surface on the inner side of the outer layer; and the  
outer layer is also incorporated to the load side  
steering shaft S104 so to provide linkage with the load  
30 when the engine runs at low rpm or is temporarily cut

off; the ICE101 is directly or by means of a steering shaft S103 driven by a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 and the load side steering shaft S102 is incorporated to the drive draw side of the centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the steering shaft S103 driven by the engine ICE101 when the load side steering shaft S102 reaches its preset rpm;

- the engine ICE101: comprised of various known internal combustion engine and its related start-up and operation speed control device and peripheral interface devices including fuel system, air inlet & exhaust system, ignition system and cooling system to directly drive the steering shaft S103 or by way of fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T104;

- the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104: an optional mechanism comprised of various known coaxial or non-coaxial transmission, e.g. a fixed ratio speed or stage or stageless variable transmission mechanism comprised of a gear set, belt gear set or sprocket gear set or power-locking gear set,

- the primary dynamo-electric unit E101: essentially functioning as a motor and also as a secondary generator, related to a secondary motor of series excitation or pilot compound type secondary

dynamo-electric unit with dynamo-electric unit characteristics that the speed becomes higher when the load gets smaller; or an AC or DC brush or brushless device that executes amperage control (including control of constant current) for the input electric energy to generate kinetic energy of rotation mechanical that increases torque as the load increases, or to other AC or DC, brush or brushless, synchronous or asynchronous inner rotor or outer rotor rotation dynamo-electric unit; the primary dynamo-electric unit E101 is coupled to the load side steering shaft S104 and to the drive draw side of the centrifugal clutch FC101 by means of a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T102; and the load side steering shaft S104 is forthwith outputted to the load, or as required, to execute uniaxial output by a selected fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T103 through the steering shaft S105, or alternatively, a transmission mechanism comprised of a differential gear set DG to execute differential output through two units of differential steering shafts S105R and S105L;

- the secondary dynamo-electric unit E102: essentially functioning as a generator and also as a secondary motor, comprised of an inner rotor or outer rotor rotation dynamo-electric unit generates AC or DC, brush or brushless, synchronous or asynchronous energy to convert kinetic energy of rotation

RECEIVED  
U.S. PATENT OFFICE  
JULY 1973

mechanical into electric energy; the secondary dynamo-electric unit E102 is coupled to the steering shaft S103 of the engine ICE101 and the centrifugal clutch FC101 by means of a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T101, or the secondary dynamo-electric unit E102 is directly coupled to the steering shaft S103 of the engine; and

- 5 - the output clutch CL101: an optional mechanism provided between the output side of the primary dynamo-electric unit E101 and the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103, the output clutch CL101 is controlled by manual, mechanical, electromagnetic or hydraulic or centrifugal force; the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and patterns related to those claimed in Claim 2 or other specific operation pattern.
- 10 15 20 25 30

7. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 6, wherein, the primary dynamo-electric unit is replaced with two units of dynamo-electric units respectively provided on the output shaft sides of the differential gear set; the primary dynamo-electric unit E101 as claimed in Claim

PCT EP0025650

6 is replaced by a primary dynamo-electric unit E101R  
to the right and another primary dynamo-electric unit  
E101L on the left; the primary dynamo-electric unit E101R  
is directly connected in series with a steering shaft  
5 S105R to the right of a differential gear set DG or  
alternatively adapted with a one-way or two-way clutch  
CLU before being connected in series to the steering shaft  
S105R to the right of the differential gear set DG; the  
other primary dynamo-electric unit E101L is directly  
10 connected in series with a steering shaft S105L to the  
left of a differential gear set DG or alternatively  
adapted with a one-way or two-way clutch CLU before being  
connected in series to the steering shaft S105L to the  
left of the differential gear set DG; the steering shaft  
15 S104 on the load side of the centrifugal clutch FC101  
is directly outputted to the steering shaft S105 of the  
differential gear set DG, or through the fixed or variable  
speed ratio or variable steering transmission or  
planetary transmission mechanism T103 before being  
outputted to the steering shaft S105 of the differential  
gear set DG, or alternatively, by means of the output  
20 clutch CL101 controlled by manual, mechanical,  
electromagnetic, hydraulic or centrifugal force before  
being outputted to the steering shaft S105 of the differential  
gear set DG, or alternatively, by means of the output  
clutch CL101 controlled by manual, mechanical,  
electromagnetic, hydraulic or centrifugal force before  
being outputted to the steering shaft S105 of the differential  
gear set DG. Both of the primary  
25 dynamo-electric units E101R and another primary  
dynamo-electric unit E101L are subject to equal speed  
or differential drive by the drive control device CD101.

8. A drive dynamo-electric unit speed controlled compound  
30 power system as claimed in Claim 1, wherein, the

00000000000000000000000000000000

centrifugal clutch FC101 and another clutch CL102 controlled by manual, mechanical, electromagnetic, hydraulic power-locking type or hydraulic coupling type are provided between the engine steering shaft S103  
5 and the load side steering shaft S104 so to execute power coupling or interruption on both of the engine steering shaft S103 and the load side steering shaft S104 for the system to be equipped with a power-locking type or hydraulic coupling type controllable clutch CL102 and  
10 engine throttle, to further acquire another specific function for the engine rotation power driven load; the steering shaft S103 either directly driven by the engine ICE101, or through a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104 is coupled to the drive drawn side of the centrifugal clutch FC101 while the load side steering shaft S104 to the drive draw side of the centrifugal clutch FC101; once the load-side steering shaft S104 reaches the preset rpm, the centrifugal clutch FC101 is forthwith closed to draw the steering shaft S103  
15 driven by the engine ECE101; the centrifugal clutch FC101 and the controllable clutch CL102 is individually provided or sharing the same structure.

- the engine ICE101: comprised of various known internal  
25 combustion engine and its related start-up and operation speed control device and peripheral interface devices including fuel system, air inlet & exhaust system, ignition system and cooling system to directly drive the steering shaft S103 or by way of fixed speed ratio or variable speed ratio or  
30

- variable steering transmission mechanism or  
planetary transmission mechanism T104;
- the fixed or variable speed ratio or variable steering  
transmission or planetary transmission mechanism  
5 T104: an optional mechanism comprised of various known  
coaxial or non-coaxial transmission, e.g. a fixed  
ratio speed or stage or stageless variable  
transmission mechanism comprised of a gear set, belt  
gear set or sprocket gear set or power-locking gear  
10 set,
- the primary dynamo-electric unit E101: essentially  
functioning as a motor and also as a secondary  
generator, related to a secondary motor of series  
excitation or pilot compound type secondary  
15 dynamo-electric unit with dynamo-electric unit  
characteristics that the speed becomes higher when  
the load gets smaller; or an AC or DC brush or brushless  
device that executes amperage control (including  
control of constant current) for the input electric  
20 energy to generate kinetic energy of rotation  
mechanical that increases torque as the load increases,  
or to other AC or DC, brush or brushless, synchronous  
or asynchronous inner rotor or outer rotor rotation  
dynamo-electric unit; the steering shaft S101 of the  
25 primary dynamo-electric unit E101 is coupled to the  
load side steering shaft S104 of the centrifugal  
clutch FC101 by means of a fixed or variable speed  
ratio or variable steering transmission or planetary  
transmission mechanism T102; and
- the secondary dynamo-electric unit E102: essentially

SEARCHED \_\_\_\_\_  
INDEXED \_\_\_\_\_  
SERIALIZED \_\_\_\_\_  
FILED \_\_\_\_\_

DRAFT

functioning as a generator and also as a secondary motor, comprised of an inner rotor or outer rotor rotation dynamo-electric unit generates AC or DC, brush or brushless, synchronous or asynchronous energy to convert kinetic energy of rotation mechanical into electric energy; the secondary dynamo-electric unit E102 is coupled to the steering shaft S103 of the engine ICE101 and the centrifugal clutch FC101 by means of a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T101, or the secondary dynamo-electric unit E102 is directly coupled to the steering shaft S103 of the engine;

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101 and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and patterns related to those claimed in Claim 2 or other specific operation pattern.

9. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 8, wherein, an output clutch CL101 controlled by manual, mechanical, electromagnetic, and hydraulic or centrifugal force is provided between the load side steering shaft S104 driven by the primary dynamo-electric unit E101 and the load. When the output clutch CL101 is closed, it provides the same function as those by the preferred embodiment

illustrated in Fig. 6; and additional functions when the output clutch CL101 is disengaged, including being separated from the load to leave the engine to simultaneously drive the first and the second 5 dynamo-electric units E101 and E102 to function as generators, or to drive the primary dynamo-electric E101 alone to operate as a generator while the primary dynamo-electric unit E101 is provided between the output clutch CL101 and the controllable clutch CL102; as well 10 as functions related to those claimed in Claim 1 or other specific functions and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

15 10. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 9, wherein, the primary dynamo-electric unit replaced by two independent dynamo-electric units respectively provided on the side of two output shafts of a differential gear set; within, the primary dynamo-electric unit E101 as claimed in Claim 20 9 is replaced by a primary dynamo-electric unit E101R to the right and another primary dynamo-electric unit E101L on the left; the primary dynamo-electric unit E101R to the right is directly connected in series with the steering shaft S105R to the right of the differential gear set DG, or alternatively, a one-way or two-way 25 alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105R to the right of the differential gear set DG; the other primary dynamo-electric unit E101L on the left is 30 directly connected in series with a steering shaft S105L

202004261050

to the left of a differential gear set DG or alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105L to the left of the differential gear set DG; the steering shaft 5 S104 on the load side of the centrifugal clutch FC101 is directly outputted to the steering shaft S105 of the differential gear set DG, or through the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103 before being 10 outputted to the steering shaft S105 of the differential gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the steering shaft S105 of the differential gear set DG. Both of the primary 15 dynamo-electric unit E101R to the right and the other primary dynamo-electric unit E101L on the left are subject to equal speed or differential drive by a drive control device CD101 to provide the same functions as those as 20 claimed in Claim 9.

11. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 1, including application system having the centrifugal clutch provided in opposite direction as the drive control, essentially comprised 25 of having provided the centrifugal clutch FC101 between the steering shaft S103 driven by the engine ICE101 and the load side steering shaft S104 to control the operation of coupling or interruption the transmission by both of the steering shafts S103 and S104. Within, the steering shaft S103 driven by the engine ICE101 is coupled to the 30

drive draw side of the centrifugal clutch FC101 and the load side steering shaft S104 is coupled to the driven draw side of the centrifugal clutch FC101 so that once the steering shaft S103 which is directly driven by the engine ICE101 or through a fixed speed ratio or variable speed ratio, or variable steering device or planetary transmission mechanism T104 reaches the preset rpm, it drives to close the centrifugal clutch FC101, thus to draw the load side steering shaft S104; the steering shaft S104 on the load side is provided to drive the load, and a fixed speed ratio or variable speed ratio or variable steering transmission mechanism T102 is provided to the steering shaft S104 on the load side to engage in mutual transmission with a primary dynamo-electric unit E101; and furthermore, the incorporating relationship among the adapted load side steering shaft S104, the engine ICE101, the variable steering or planetary transmission mechanism T104 with fixed or variable speed ratio, the primary and the secondary dynamo-electric units E101 and E102 is identical with that as claimed in Claim 4; the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and specific patterns related to those claimed in Claim 3 or other specific operation pattern.

30 12. A drive dynamo-electric unit speed controlled compound

power system as claimed in Claim 1, including application system having the centrifugal clutch provided in opposite direction as the drive control, essentially comprised of having connected in series a centrifugal clutch FC101 then another centrifugal clutch FC102 between the steering shaft S103 and the drive load side steering shaft S104 of the engine ICE101; the double acting centrifugal clutches FC101 and FC102 form to each other or integrated into a 3-layer structure containing an inner layer, an intermediate layer and an outer layer; within, the inner layer and the inner side of the intermediate layer form the centrifugal clutch FC101, the inner layer incorporated to the load side steering shaft S103 of the engine ICE101 drawn to each other is provided with a drive power-locking unit to act outward when the centrifugal force reaches a preset value; the outer side of the intermediate layer and the inner side of the outer layer form the centrifugal clutch FC102; the intermediate layer being coupled to the load side steering shaft S104 having its inner side provided with circumferential coupling surface for power-locking and its outer side provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; and the outer layer is also incorporated to the steering shaft S103 on the side of the engine ICE101 so to provide linkage with the load when the engine runs at low rpm or is temporarily cut off; the steering shaft S103 either directly driven or driven through a fixed

0000000000000000

speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 by the engine is coupled to the drive draw side of the centrifugal clutch FC101 and the load side 5 steering shaft S104 to the driven draw side of the centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the steering shaft S103 driven by the engine ICE101 when the steering shaft S103 on the side of the engine ICE101 reaches its 10 preset rpm; alternatively, a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T102 is provided on the load side steering shaft S104 to engage mutual transmission with the primary dynamo-electric unit; and furthermore, the incorporating relationship among the 15 adapted load side steering shaft S104, the engine ICE101, the variable steering or planetary transmission mechanism T104 with fixed or variable speed ratio, the primary and the secondary dynamo-electric units E101 and E102 is identical with that as claimed in Claim 4; the combination of those structures described above for 20 the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above 25 provides functions related to those claimed in Claim 1 or other specific function, and specific patterns related to those claimed in Claim 2 or other specific operation pattern.

30 13. A drive dynamo-electric unit speed controlled compound

CONFIDENTIAL - SECURITY INFORMATION

power system as claimed in Claim 1, including application system having the centrifugal clutch provided in opposite direction as the drive control, essentially comprised of having alternatively provided an output clutch CL301 controlled by manual, mechanical, electromagnetic or hydraulic force between the steering shaft S103 on the side of the engine ICE101 as claimed in Claim 12 and where between the drive draw side of the double-acting centrifugal clutch FC101 and the driven draw side of the other centrifugal clutch FC102, and subject to the control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101 to provide the same functions as those claimed in Claim 12 when the output clutch CL301 is closed; and when the output clutch CL301 is disengaged, to provide additional functions including functions related to those as claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation pattern.

14. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 1, including application system having the centrifugal clutch provided in opposite direction as the drive control, essentially comprised of having the dynamo-electric unit E101 and the load side steering shaft S104 to indicate coaxial structure while the double-acting centrifugal clutches FC101 and FC102 are provided between the dynamo-electric unit E101 and the engine ICE101, within, its intermediate structure is provided to be incorporated to the load side steering

. .

shaft S104 in the same structure of the output shaft of  
the primary dynamo-electric unit E101, and its inner and  
outer layers incorporated to the engine steering shaft  
S103; the double acting centrifugal clutches FC101 and  
5           FC102 form to each other or integrated into a 3-layer  
structure containing an inner layer, an intermediate  
layer and an outer layer. Within, the inner layer and  
the inner side of the intermediate layer form the  
centrifugal clutch FC101, the inner layer incorporated  
10          to the engine steering shaft S103 drawn to each other  
is provided with a drive power-locking unit to act outward  
when the centrifugal force reaches a preset value; the  
outer side of the intermediate layer and the inner side  
of the outer layer form the centrifugal clutch FC102;  
15          the intermediate layer being coupled to the steering shaft  
S103 driven by the primary dynamo-electric unit E101  
having its inner side provided with circumferential  
coupling surface for power-locking and its outer side  
provided with a drive power-locking unit acting outward  
when the centrifugal force reaches its preset value  
20          performs the functions as an output clutch with the  
power-locking circumferential coupling surface on the  
inner side of the outer layer; the drive draw side of  
the centrifugal clutch FC101 is incorporated to the  
steering shaft S103 on the side of the engine ICE101 so  
25          to couple to the engine to drive the load when the engine  
runs at high rpm, and to cut off the linkage to the load  
when the engine runs at low rpm; the engine ICE101 is  
either directly or by means of the steering shaft S103  
driven by a fixed speed ratio or variable speed ratio,

CONFIDENTIAL

or variable steering transmission mechanism or planetary transmission mechanism T104, coupled to the drive draw side of the centrifugal clutch FC101 and the driven draw side of the other centrifugal clutch FC102; meanwhile,  
5 the load side steering shaft S104 is coupled to the driven draw side of the centrifugal clutch FC101 and the drive draw side of the other centrifugal clutch FC102 so that when the load side steering shaft S104 reaches its preset rpm, the other centrifugal clutch FC102 is closed thus  
10 to draw the steering shaft S103 driven by the engine ICE101, or when the steering shaft S103 on the side of the engine ICE101 reaches its preset rpm, the centrifugal clutch FC101 is closed, thus to draw the load side steering shaft S104 to drive the load; and furthermore, the incorporating  
15 relationship among the adapted engine ICE101, the variable steering or planetary transmission mechanism T104 with fixed or variable speed ratio, the primary and the secondary dynamo-electric units E101 and E102, and the output clutch CL101 is identical with that as claimed  
20 in Claim 5;

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above  
25 provides functions related to those claimed in Claim 1 or other specific function, and specific patterns related to those claimed in Claim 2 or other specific operation pattern.

30 15. A drive dynamo-electric unit speed controlled compound

CONFIDENTIAL - SECURITY INFORMATION

power system as claimed in Claim 14, wherein, the primary  
dynamo-electric unit as claimed in Claim 14 is replaced  
by two independent dynamo-electric units respectively  
provided on two output shafts of the differential gear  
5 set; essentially by having the primary dynamo-electric  
unit E101 substituted by two independent primary  
dynamo-electric units E101R and E101L respectively to  
the right and left; the primary dynamo-electric unit  
E101R to the right is directly connected or alternatively  
10 through a one-way or two-way clutch CLU in series to the  
steering shaft S105R to the right of the differential  
gear set DG; and the primary dynamo-electric unit E101L  
on the left is directly connected or alternatively through  
15 a one-way or two-way clutch CLU in series to the steering  
shaft S105L to the left of the differential gear set DG;  
the steering shaft S104 on the load side of the centrifugal  
clutch FC101 is directly outputted to the steering shaft  
S105 of the differential gear set DG, or through the fixed  
or variable speed ratio or variable steering transmission  
20 or planetary transmission mechanism T103 before being  
outputted to the steering shaft S105 of the differential  
gear set DG, or alternatively, by means of the output  
clutch CL101 controlled by manual, mechanical,  
electromagnetic, hydraulic or centrifugal force before  
25 being outputted to the steering shaft S105 of the  
differential gear set DG; both of the primary  
dynamo-electric units E101R and another primary  
dynamo-electric unit E101L are subject to equal speed  
or differential drive by the drive control device CD101.  
30 16. A drive dynamo-electric unit speed controlled compound

RECEIVED  
MAY 16 2008  
U.S. PATENT AND TRADEMARK OFFICE

system as claimed in Claim 11, wherein, a controllable clutch by having provided a centrifugal clutch FC101 and a controllable CL102 controlled by manual, mechanical, electromagnetic, hydraulic power-locking type or 5 hydraulic coupling type is provided between the engine steering shaft S103 and the load side steering shaft S104 so to execute power coupling or interruption on both of the engine steering shaft S103 and the load side steering shaft S104 for the system to be equipped with a power-locking type or hydraulic coupling type 10 controllable clutch CL102 and engine throttle, to further acquire another specific function for the engine rotation power driven load; the steering shaft S103 either directly driven by the engine ICE101, or through a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104 is coupled to the driven drawn side of the centrifugal clutch FC101 while the load side steering shaft S104 to the drive draw side 15 of the centrifugal clutch FC101; once the steering shaft S103 on the side of the engine ICE101 reaches its preset rpm, the centrifugal clutch FC101 is forthwith closed to draw the load side steering shaft S104; the centrifugal clutch FC101 and the controllable clutch CL102 is individually provided or sharing the same structure; and other units comprising the system are the same as those 20 claimed in Claim 3. and furthermore, the incorporating relationship among the adapted load side steering shaft S104, the engine ICE101, the variable steering or planetary transmission mechanism T104 with fixed or variable speed ratio, the primary and the secondary 25 30

•

•

dynamo-electric units E101 and E102 is identical with that as claimed in Claim 3;

5           the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and specific patterns related  
10          to those claimed in Claim 2 or other specific operation pattern.

- 15          17. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 16, wherein, an output clutch CL101 controlled by manual, mechanical, electromagnetic, and hydraulic or centrifugal force is provided between the load side steering shaft S104 driven by the primary dynamo-electric unit E101 and the load; when the output clutch CL101 is closed, it provides the same function as those by the preferred embodiment illustrated in Fig. 14; and additional functions when the output clutch CL101 is disengaged, including being separated from the load to leave the engine to simultaneously drive the first and the second dynamo-electric units E101 and E102 to function as generators, or to drive the primary dynamo-electric E101 alone to operate as a generator while the primary dynamo-electric unit E101 is provided between the output clutch CL101 and the controllable clutch CL102; as well as functions related to those claimed in Claim 1 or other specific function, and operation patterns related to  
20  
25  
30

5

10

15

20

25

30

those claimed in Claim 2 or other specific operation pattern.

18. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 17, wherein, the primary dynamo-electric unit is replaced by two independent dynamo-electric units respectively provided on the side of two output shafts of a differential gear set, essentially comprised of the primary dynamo-electric unit E101 as claimed in Claim 17 is replaced by a primary dynamo-electric unit E101R to the right and another primary dynamo-electric unit E101L on the left; the primary dynamo-electric unit E101R to the right is directly connected in series with the steering shaft S105R to the right of the differential gear set DG, or alternatively, a one-way or two-way alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105R to the right of the differential gear set DG. The other primary dynamo-electric unit E101L on the left is directly connected in series with a steering shaft S105L to the left of a differential gear set DG or alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105L to the left of the differential gear set DG; the steering shaft S104 on the load side of the centrifugal clutch FC101 is directly outputted to the steering shaft S105 of the differential gear set DG, or through the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103 before being outputted to the steering shaft S105 of the differential

- CONFIDENTIAL
- gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the steering shaft S105 of the differential gear set DG; both of the primary dynamo-electric unit E101R to the right and the other primary dynamo-electric unit E101L on the left are subject to equal speed or differential drive by a drive control device CD101 to provide the same functions as those claimed in Claim 17.
- 10
19. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 11, wherein, the primary dynamo-electric unit E101 and the load side steering shaft S104 are provided in the same structure, essentially comprised of having provided the centrifugal clutch FC101 between the steering shaft S103 and the load side steering shaft S104 of the engine ICE101 to control the operation of coupling or interruption the transmission by both of the steering shafts S103 and S104; within, the steering shaft S103 driven by the engine ICE101 is coupled to the drive draw side of the centrifugal clutch FC101 and the load side steering shaft S104 is coupled to the driven draw side of the centrifugal clutch FC101 so that once the steering shaft S103 which is directly driven by the engine ICE101 or through a fixed speed ratio or variable speed ratio, or variable steering device or planetary transmission mechanism T104 reaches the preset rpm, it drives to close the centrifugal clutch FC101, thus to draw the load side steering shaft S104; the steering shaft S104 on the load side is provided to drive the load, and
- 15
- 20
- 25
- 30

shares the coaxial structure with the primary dynamo-electric unit E101;

- the load side steering shaft S104: is directly outputted to the load, or alternatively, to an output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the load; or as required, to execute single shaft output through a fixed speed ratio or variable speed ratio, variable steering transmission or planetary transmission mechanism T103, then through a steering shaft S105; or an optional transmission mechanism comprised of a differential gear set DG for differential output through two units of differential steering shafts S105R and S105L;
- the engine ICE101: comprised of various known internal combustion engine and its related start-up and operation speed control device and peripheral interface devices including fuel system, air inlet & exhaust system, ignition system and cooling system to directly drive the steering shaft S103 or by way of fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T104;
- the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104: an optional mechanism comprised of various known coaxial or non-coaxial transmission, e.g. a fixed ratio speed or stage or stageless variable transmission mechanism comprised of a gear set, belt

PCT/EP2016/06204

- gear set or sprocket gear set or power-locking gear set;
- the primary dynamo-electric unit E101: essentially functioning as a motor and also as a secondary generator, related to a secondary motor of series excitation or pilot compound type secondary dynamo-electric unit with dynamo-electric unit characteristics that the speed becomes higher when the load gets smaller; or an AC or DC brush or brushless device that executes amperage control (including control of constant current) for the input electric energy to generate kinetic energy of rotation mechanical that increases torque as the load increases, or to other AC or DC, brush or brushless, synchronous or asynchronous inner rotor or outer rotor rotation dynamo-electric unit; the primary dynamo-electric unit E101 shares the coaxial structure with the load side steering shaft S104 and is coupled to the driven draw side of the centrifugal clutch FC101;
- the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those as claimed in Claim 1 or other specific function, and operation patterns related to those operation claimed in Claim 2 or other specific operation patterns.
20. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 19, wherein, a secondary

dynamo-electric unit E102 which is directly coupled to the steering shaft S103 of the engine ICE101 or engaging in mutual transmission with the steering shaft S103 of the engine ICE101 by means of a variable steering or planetary transmission mechanism T101 with fixed or variable speed ratio so to function at the same time as a generator and as a motor; within,

- the secondary dynamo-electric unit E102: essentially functioning as a generator and also as a secondary motor, comprised of an inner rotor or outer rotor rotation dynamo-electric unit generates AC or DC, brush or brushless, synchronous or asynchronous energy to convert kinetic energy of rotation mechanical into electric energy; the secondary dynamo-electric unit E102 is coupled to the centrifugal clutch FC101 and the steering shaft S103 driven by the engine ICE101 and to the drive draw side of the centrifugal clutch FC101 by means of a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T101, or the secondary dynamo-electric unit E102 is directly coupled to the steering shaft S103 of the engine;

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those as claimed in Claim 1 or other specific function, and

operation patterns related to those operation claimed  
in Claim 2 or other specific operation patterns.

21. A drive dynamo-electric unit speed controlled compound  
power system as claimed in Claim 19 or 20, wherein. the  
5 primary dynamo-electric unit E101 is further replaced  
by two independent units of the primary dynamo-electric  
unit E101R to the right and another primary  
dynamo-electric unit E101L on the left; within, the  
primary dynamo-electric unit E101R to the right is  
10 directly connected in series with the steering shaft S105R  
to the right of the differential gear set DG, or  
alternatively, adapted with a one-way or two-way clutch  
CLU before being connected in series to the steering shaft  
S105R to the right of the differential gear set DG while  
the primary dynamo-electric unit E101L on the left is  
15 directly connected in series with the steering shaft S105L  
to the left of the differential gear set DG, or  
alternatively, adapted with a one-way or two-way clutch  
CLU before being connected in series to the steering shaft  
S105L to the left of the differential gear set DG; the  
load side steering shaft S104 of the centrifugal clutch  
FC101 is directly or through the fixed ratio or variable  
speed ratio or variable steering transmission mechanism  
or planetary transmission mechanism T103 outputted to  
20 the steering shaft S105 of the differential gear set DG,  
or alternatively, outputted to the output clutch CL101  
before being outputted to the steering shaft S105 of the  
differential gear set DG; meanwhile, both of the primary  
dynamo-electric units E101R and E101L respectively to  
25 the right and the left are subject to drive at equal speed

DRAFT - 8/2000

or differential drive by the drive control device CD101.

22. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 1, wherein, an automatic transmission mechanism T1040 is provided between the engine ICE101 and the drive shaft S103 to copy with demands on performance or structural space, essentially comprised of:

- the automatic transmission mechanism T1040 comprised of automatic transmission belt gear set (CTV) or other known automatic transmission device is provided between the engine ICE101 and the steering shaft S103; a centrifugal clutch FC103 is provided between the steering shaft S103 and the load side steering shaft S104 to control the operation of transmission coupling or transmission interruption of both the steering shaft S103 and the load side steering shaft S104; within, the steering shaft S103 driven by the engine ICE101 is provided to drive the automatic transmission mechanism T1040 before being coupled to the drive draw side of the centrifugal clutch FC103 by the structure of the output terminal of the automatic transmission mechanism T1040 while the load side steering shaft S104 is coupled to the driven draw side of the centrifugal clutch FC103 so that the centrifugal clutch FC103 is forthwith closed to draw the load side steering shaft S104 once the structure of the output terminal of the automatic transmission mechanism reaches its preset rpm;
- the load side steering shaft S104: configurations of the output structure comprised by the load side

5

10

15

20

25

30

DRAFT ATTACHMENT

steering shaft S104 and the primary dynamo-electric unit E101 include:

1. A directly coaxial structure is indicated between the load side steering shaft S104 and the primary dynamo-electric unit E101 for the coaxial structure of the load side steering shaft S104 to directly drive the load; or
2. Alternatively, a fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T103 is provided between the load side steering shaft S104 and the primary dynamo-electric unit E101 for the output terminal of the primary dynamo-electric unit E101 to directly drive the load; or
3. A fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary or differential transmission mechanism T105 is further provided between the output terminal of the primary dynamo-electric unit E101 and the load as described in subparagraph 1, then the output terminal is selected as required to drive the load; or
4. a fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T103 is provided between the coaxial structure of the load side steering shaft S104 and the primary dynamo-electric unit E101 and the driven load, then as required the fixed speed ratio or

variable speed ratio or variable steering transmission mechanism or planetary or differential transmission mechanism T105 is provided, and the output terminal is selected as required to drive the load; within:

- the engine ICE101: comprised of various known internal combustion engine and its related start-up and operation speed control device and peripheral interface devices including fuel system, air inlet & exhaust system, ignition system and cooling system to directly drive the steering shaft S103 or by way of fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T104;
- the automatic transmission mechanism T1040: an optional mechanism comprised of various known coaxial or non-coaxial transmission, e.g. a gear set, belt gear set, sprocket gear set, power-locking gear set or hydraulic coupling device, or automatic transmission mechanism, stage or stageless variable, comprised of electromagnetic coupling device;
- the primary dynamo-electric unit E101: essentially functioning as a motor and also as a secondary generator, related to a secondary motor of series excitation or pilot compound type secondary

DRAFT PCT/US2007/034304

dynamo-electric unit with dynamo-electric  
unit characteristics that the speed  
becomes higher when the load gets smaller;  
or an AC or DC brush or brushless device  
5 that executes amperage control (including  
control of constant current) for the input  
electric energy to generate kinetic energy  
of rotation mechanical that increases  
torque as the load increases, or to other  
10 AC or DC, brush or brushless, synchronous  
or asynchronous inner rotor or outer rotor  
rotation dynamo-electric unit; the  
primary dynamo-electric unit E101 is  
directly coupled to the driven draw side  
15 of the centrifugal clutch FC101, or  
alternatively, by means of a fixed or  
variable speed ratio or variable steering  
transmission or planetary transmission  
mechanism T103, coupled to the load side  
20 steering shaft S104 driven by the driven  
draw side of the centrifugal clutch FC101;  
the primary dynamo-electric unit E101  
directly drives the load, or alternatively,  
25 a transmission mechanism of fixed speed  
ratio or variable speed ratio or variable  
steering, or a fixed speed, variable speed  
ratio, variable steering, planetary, or  
differential transmission mechanism T105  
is provided to drive the load; and  
30 - the secondary dynamo-electric unit E102:

00000000000000000000000000

essentially functioning as a generator and  
also as a secondary motor, comprised of  
an inner rotor or outer rotor rotation  
dynamo-electric unit generates AC or DC,  
5 brush or brushless, synchronous or  
asynchronous energy to convert kinetic  
energy of rotation mechanical into  
electric energy; the secondary  
dynamo-electric unit E102 is coupled to  
the centrifugal clutch FC101 and the  
steering shaft S103 driven by the engine  
ICE101 and to the drive draw side of the  
centrifugal clutch FC101 by means of a fixed  
or variable speed ratio or variable  
10 steering transmission or planetary  
transmission mechanism T101, or the  
secondary dynamo-electric unit E102 is  
directly coupled to the steering shaft S103  
of the engine;

15 the combination of those structures described above for  
the system are subject to control by the manual control  
interface M101, the central control unit CCU101, the drive  
control device CD101 and the storage discharging device  
ESD101; and the specific system structure described above  
provides functions related to those as claimed in Claim  
20 1 or other specific function, and operation patterns  
related to those operation claimed in Claim 2 or other  
specific operation patterns.

25 23. A drive dynamo-electric unit speed controlled compound  
power system as claimed in Claim 3, wherein, a one-way

20230626

transmission mechanism as a drive control connected in series with the driven draw side of the centrifugal clutch essentially comprised of having provided the centrifugal clutch FC101 between the steering shaft S103 driven by the engine ICE101 and the load side transmission shaft S104 for controlling the operation of the steering shaft S103 and the load side steering shaft S104 to couple or interrupt transmission, and a one-way transmission mechanism SWC101 selected for steering operation, within, the steering shaft S103 driven by the engine ICE101 is coupled to the driven draw side of the centrifugal clutch FC101 through the one-way transmission mechanism SWC101 selected for steering operation while the load side steering shaft S104 is coupled to the drive draw side of the centrifugal clutch FC101 so that when the load side steering shaft S104 reaches its preset rpm, the centrifugal clutch FC101 is forthwith closed, thus to draw the steering shaft S103 directly driven by the engine ICE101 or through the fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T104; the load side steering shaft S104 to drive the load is provided with another fixed speed ratio or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T102 to engage in mutual transmission with the first primary dynamo-electric unit E101 while other units comprising the system are the same as those claimed in Claim 3; the combination of those structures described above for the system are subject to control by the manual control interface M101, the

0000000000000000

central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those as claimed in Claim 1 or other specific function, and operation patterns related to those operation claimed in Claim 2 or other specific operation patterns.

- 5
24. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 4, wherein, a one-way transmission mechanism as the driven control is connected in series with the driven draw side of the centrifugal clutch, essentially comprised of double-acting centrifugal clutches FC101 and FC102 and the one-way transmission mechanism SWC 101 selected for steering operation connected in sequence between the steering shaft S103 and the drive load side steering shaft S104 of the engine ICE101. The double-acting centrifugal clutches is comprised of two units of centrifugal clutches FC101 and FC102 in a three-layer structure, an inner, an intermediate and an out layers, either by insertion to each other or integrated; within, the inner layer and the inner side of the intermediate layer form the centrifugal clutch FC101; the inner layer incorporated to the load side steering shaft S104 drawn to each other is provided with a drive power-locking unit to act outward when the centrifugal force reaches a preset value; the outer side of the intermediate layer and the inner side of the outer layer form the centrifugal clutch FC102; the intermediate layer related to the one-way transmission mechanism SWC101 selected for steering
- 10
- 15
- 20
- 25
- 30

00000000000000000000000000000000

operation is coupled to the steering shaft S103 driven by the engine. The inner side of the intermediate layer is provided with a circumferential coupling surface for power-locking and its outer side is provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; the outer layer is also incorporated to the load side steering shaft S104 so to provide linkage with the load when the engine runs at low rpm or is temporarily cut off; the steering shaft S103 either directly driven or driven through a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 by the engine is coupled to the driven draw side of the centrifugal clutch FC101 and the load side steering shaft S104 to the drive draw side of the centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the steering shaft S103 driven by the engine ICE101 when the load side steering shaft S104 reaches its preset rpm. Alternatively, a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T102 is provided on the load side steering shaft S104 to engage mutual transmission with the primary dynamo-electric unit while other units comprising the system are the same as those claimed in Claim 4;

the combination of those structures described above for

- the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those as claimed in Claim 1 or other specific function, and operation patterns related to those operation claimed in Claim 2 or other specific operation patterns.
25. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 5, wherein, a one-way transmission mechanism as the driven control connected in series with the driven draw side of the centrifugal clutch; essentially comprised of having the fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T102 as claimed in Claim 24, the inner circumference of coupling surface for power-locking of the double-acting centrifugal clutch FC101 and the outer circumference of coupling surface for power-locking of the double-acting centrifugal clutch FC102 are jointly incorporated to an intermediate steering shaft S102; the double-acting centrifugal clutches are comprised of two units of centrifugal clutches FC101 and FC102 inserted to each other in a three-layer structure, an inner, an intermediate and an out layers; within, the inner layer and the inner side of the intermediate layer form the centrifugal clutch FC101; the inner layer incorporated to the intermediate steering shaft S102 drawn to each other is provided with a drive power-locking unit to act outward when the centrifugal force reaches a preset value.

The outer side of the intermediate layer and the inner side of the outer layer form the centrifugal clutch FC102; the intermediate layer related to the one-way transmission mechanism SWC101 selected for steering operation is coupled to the steering shaft S103 driven by the engine; the inner side of the intermediate layer is provided with a circumferential coupling surface for power-locking and its outer side is provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; the outer layer is also incorporated to the intermediate steering shaft S104 so to provide linkage with the load when the engine runs at low rpm or is temporarily cut off. The steering shaft S103 either directly driven or driven through a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 by the engine is coupled to the driven draw side of the centrifugal clutch FC101 and the intermediate steering shaft S102 to the drive draw side of the centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the steering shaft S103 driven by the engine ICE101 when the intermediate steering shaft S102 reaches its preset rpm;

- the intermediate steering shaft S102: is directly outputted to the load, or alternatively, to an output clutch CL301 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force

5

before being outputted to the load via the load side steering shaft S104; or as required, to execute single shaft output through a fixed speed ratio or variable speed ratio, variable steering transmission or planetary transmission mechanism T103, then through a steering shaft S105; or an optional transmission mechanism comprised of a differential gear set DG for differential output through two units of differential steering shafts S105R and S105L; the additional output clutch CL301 is provided between the intermediate steering shaft S102 and the load side steering shaft S104 with both steering shafts driven by the power-locking coupling surfaces on the inner and outer circumferences of the double-acting centrifugal clutches FC101 and FC102 while the other units comprising the system are the same as those claimed in Claim 5;

10

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions same as those claimed in Claim 24 when the output clutch CL301 is closed; and provides additional function when the output clutch CL301 is disengaged, including functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those operation patterns claimed in Claim 2 or other specific operation pattern.

15

20

25

30

PCT/EP2022/070090

26. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 6, wherein, a one-way transmission mechanism as the driven control connected in series with the driven draw side of the centrifugal clutch, essentially comprised of the primary dynamo-electric unit E101 and the load side steering shaft S104 indicating a coaxial structure, and where between the dynamo-electric unit E101 and the engine ICE101 are provided with the double-acting centrifugal clutches FC101 and FC102, and the one-way transmission mechanism SWC101 selected for steering operation; both of the inner and the outer structures of the double-acting centrifugal clutches FC101 and FC102 are incorporated to the load side steering shaft S104 coupled to the output shaft of the primary dynamo-electric unit E101 and its intermediate layer structure is mutually incorporated to the steering shaft S103 driven by the engine ICE101; the double-acting centrifugal clutches is comprised of two units of centrifugal clutches FC101 and FC102 inserted to each other in a three-layer structure, an inner, an intermediate and an out layers; within, the inner layer and the inner side of the intermediate layer form the centrifugal clutch FC101; the inner layer incorporated to the load side steering shaft S104 drawn to each other is provided with a drive power-locking unit to act outward when the centrifugal force reaches a preset value; the outer side of the intermediate layer and the inner side of the outer layer form the centrifugal clutch FC102. The intermediate layer related to the one-way transmission mechanism SWC101 selected for steering

00024728-104324

operation is coupled to the steering shaft S103 driven by the engine; the inner side of the intermediate layer is provided with a circumferential coupling surface for power-locking and its outer side is provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; the outer layer is also incorporated to the load side steering shaft S103 so to provide linkage with the load when the engine runs at low rpm or is temporarily cut off. The steering shaft S103 either directly driven or driven through a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 by the engine is coupled to the driven draw side of the centrifugal clutch FC101 and the load side steering shaft S103 to the drive draw side of the centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the steering shaft S103 driven by the engine ICE101 when the load side steering shaft S102 reaches its preset rpm; the output clutch CL101 when required is provided between the output side of the primary dynamo-electric unit E101 and the fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T103. The output clutch CL101 is controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force while the other units comprising the system are the same as those claimed in

Claim 6;

the combination of those structures described above for  
the system are subject to control by the manual control  
interface M101, the central control unit CCU101, the drive  
control device CD101 and the storage discharging device  
ESD101; and the specific system structure described above  
provides functions related to those claimed in Claim 1  
or other specific function, and operation patterns  
related to those operation claimed in Claim 2 or other  
specific operation patterns.

27. A drive dynamo-electric unit speed controlled compound  
power system as claimed in Claim 26, wherein, the primary  
dynamo-electric unit is replaced by two independent  
dynamo-electric units respectively provided on the side  
of two output shafts of a differential gear set,  
essentially comprised of having the primary  
dynamo-electric unit E101 claimed in Claim 26 is replaced  
by a primary dynamo-electric unit E101R to the right and  
another primary dynamo-electric unit E101L on the left;  
the primary dynamo-electric unit E101R to the right is  
directly connected in series with the steering shaft S105R  
to the right of the differential gear set DG, or  
alternatively, a one-way or two-way alternatively  
adapted with a one-way or two-way clutch CLU before being  
connected in series to the steering shaft S105R to the  
right of the differential gear set DG; the other primary  
dynamo-electric unit E101L on the left is directly  
connected in series with a steering shaft S105L to the  
left of a differential gear set DG or alternatively  
adapted with a one-way or two-way clutch CLU before being

connected in series to the steering shaft S105L to the left of the differential gear set DG; the steering shaft S104 on the load side of the centrifugal clutch FC101 is directly outputted to the steering shaft S105 of the differential gear set DG, or through the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103 before being outputted to the steering shaft S105 of the differential gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the steering shaft S105 of the differential gear set DG. Both of the primary dynamo-electric unit E101R to the right and the other primary dynamo-electric unit E101L on the left are subject to equal speed or differential drive by a drive control device CD101.

28. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 23, wherein, the centrifugal clutch FC101 and a clutch CL102 controlled by manual, mechanical, electromagnetic, hydraulic power-locking type of or hydraulic coupling type are provided between the engine steering shaft S103 and the load side steering shaft S104 so to execute power coupling or interruption on both of the engine steering shaft S103 and the load side steering shaft S104 for the system to be equipped with a power-locking type or hydraulic coupling type controllable clutch CL102 and engine throttle, to further acquire another specific function for the engine rotation power driven load. The steering

D000000000000000

shaft S103 either directly driven by the engine ICE101, or through a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104 is coupled to the driven drawn side of the centrifugal clutch FC101 while the load side steering shaft S104 to the drive draw side of the centrifugal clutch FC101. That is, once the load-side steering shaft S104 reaches the preset rpm, the centrifugal clutch FC101 is forthwith closed to draw the steering shaft S103 driven by the engine ECE101; the centrifugal clutch FC101 and the controllable clutch CL102 is individually provided or sharing the same structure;

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

29. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 28, wherein, a output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force is provided between the load side steering shaft S104 driven by the primary dynamo-electric unit E101 and the load. When the output clutch CL101 is closed, it provides the same function as those claimed in Claim 28 and additional functions when the output clutch CL101 is disengaged,

including being separated from the load to leave the engine to simultaneously drive the first and the second dynamo-electric units E101 and E102 to function as generators, or to drive the primary dynamo-electric E101 alone to operate as a generator, as well as functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

30. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 29, wherein, the primary dynamo-electric unit to be replaced by two independent dynamo-electric units respectively provided on the side of two output shafts of the differential gear set, essentially comprised of having the primary dynamo-electric unit E101 as claimed in Claim 29 replaced by a primary dynamo-electric unit E101R to the right and another primary dynamo-electric unit E101L on the left; the primary dynamo-electric unit E101R to the right is directly connected in series with the steering shaft S105R to the right of the differential gear set DG, or alternatively, a one-way or two-way alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105R to the right of the differential gear set DG; the other primary dynamo-electric unit E101L on the left is directly connected in series with a steering shaft S105L to the left of a differential gear set DG or alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105L to the left of the differential gear set DG; the steering shaft

00024228560

S104 on the load side of the centrifugal clutch FC101  
is directly outputted to the steering shaft S105 of the  
differential gear set DG, or through the fixed or variable  
speed ratio or variable steering transmission or  
5 planetary transmission mechanism T103 before being  
outputted to the steering shaft S105 of the differential  
gear set DG, or alternatively, by means of the output  
clutch CL101 controlled by manual, mechanical,  
electromagnetic, hydraulic or centrifugal force before  
10 being outputted to the steering shaft S105 of the  
differential gear set DG; both of the primary  
dynamo-electric unit E101R to the right and the other  
primary dynamo-electric unit E101L on the left are subject  
15 to equal speed or differential drive by a drive control  
device CD101 to provide the same functions as those claimed  
in Claim 29.

31. A drive dynamo-electric unit speed controlled compound  
power system as claimed in Claim 23, the centrifugal  
clutch is provided in opposite direction and a one-way  
20 transmission mechanism selected for steering operation  
is provided as the drive control. Wherein, the  
centrifugal clutch FC101 is provided between the steering  
shaft S103 driven by the engine ICE101 and the load side  
steering shaft S104 to control the operation of coupling  
25 or interruption the transmission by both of the steering  
shafts S103 and S104; the steering shaft S103 driven by  
the engine ICE101 is coupled to the drive draw side of  
the centrifugal clutch FC101 and the load side steering  
shaft S104 is coupled to the driven draw side of the  
30 centrifugal clutch FC101 so that once the steering shaft

CN102056000

- S103 which is directly driven by the engine ICE101 or through a fixed speed ratio or variable speed ratio, or variable steering device or planetary transmission mechanism T104 reaches the preset rpm, it drives to close 5 the centrifugal clutch FC101, thus to draw the load side steering shaft S104; the steering shaft S104 on the load side is provided to drive the load, and a fixed speed ratio or variable speed ratio or variable steering transmission mechanism T102 is provided to the steering shaft S104 on the load side to engage in mutual 10 transmission with a primary dynamo-electric unit E101 while the other units comprising the system are the same as those claimed in Claim 11;
- the combination of those structures described above for 15 the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those claimed in Claim 1 20 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.
32. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 24, wherein, a 25 centrifugal clutch is provided in opposite direction and a one-way transmission mechanism selected for steering operation is provided as the drive control, essentially comprised of the double-acting centrifugal clutches FC101 and FC102 are connected in series between the steering shaft S103 and the drive load side steering shaft 30

200906220000

S104 of the engine ICE101; the double acting centrifugal clutches FC101 and FC102 form to each other by insertion or are integrated into a 3-layer structure containing an inner layer, an intermediate layer and an outer layer; the inner layer and the inner side of the intermediate layer form the centrifugal clutch FC101, the inner layer incorporated to the steering shaft S103 on the side of the engine ICE101 drawn to each other is provided with a drive power-locking unit to act outward when the centrifugal force reaches a preset value; the outer side of the intermediate layer and the inner side of the outer layer form the centrifugal clutch FC102; the intermediate layer being coupled to the load side steering shaft S103 having its inner side provided with circumferential coupling surface for power-locking and its outer side provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; and the outer layer is also incorporated to the steering shaft S103 on the side of the engine ICE101 so to provide linkage with the load when the engine runs at low rpm or is temporarily cut off; the load side steering shaft S103 either directly driven or driven through a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 by the engine is coupled through the one-way transmission mechanism SWC101 selected for steering operation to the drive draw side of the centrifugal clutch FC101 and the load side

00000000000000000000000000000000

steering shaft S104 to the driven draw side of the centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the load side steering shaft S104 when the load side steering shaft S104 reaches its preset rpm. Alternatively, a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T102 is provided on the load side steering shaft S104 to engage mutual transmission with the primary dynamo-electric unit; while the other units comprising the system are the same as those claimed in Claim 12; the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

33. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 25, wherein, the centrifugal clutch is provided in opposite direction and a one-way transmission mechanism selected for steering operation to function as the drive control; an output clutch CL301 controlled by manual, mechanical, electromagnetic or hydraulic force is alternatively provided between the steering shaft S103 on the side of the engine ICE101 and the double-acting centrifugal clutches at where between the drive draw side of the

centrifugal clutch FC101 and the driven draw side of the centrifugal clutch FC102 while the other units comprising the system are the same as those claimed in Claim 13; the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides same functions same as those claimed in Claim 32 when the output clutch CL301 is closed; and when the output clutch CL301 is disengaged, the specific system structure described above provides additional functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

34. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 26, wherein, the centrifugal clutch is provided in opposite direction and a one-way transmission mechanism selected for steering operation functioning as the drive control; the dynamo-electric unit E101 and the load side steering shaft S104 indicate a coaxial structure with the double-acting centrifugal clutches FC101 and FC102 provided between the dynamo-electric unit E101 and the engine ICE101; the intermediate structure is provided to be incorporated to the load side steering shaft S104 in the same structure of the output shaft of the primary dynamo-electric unit E101, and its inner and outer layers incorporated to the engine steering shaft S103; the double acting centrifugal clutches FC101 and FC102 form to each other or integrated

into a 3-layer structure containing an inner layer, an intermediate layer and an outer layer; within, the inner layer and the inner side of the intermediate layer form the centrifugal clutch FC101, the inner layer incorporated to the engine steering shaft S103 drawn to each other is provided with a drive power-locking unit to act outward when the centrifugal force reaches a preset value; the outer side of the intermediate layer and the inner side of the outer layer form the centrifugal clutch FC102; the intermediate layer being coupled to the steering shaft S103 driven by the primary dynamo-electric unit E101 having its inner side provided with circumferential coupling surface for power-locking and its outer side provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; the drive draw side of the centrifugal clutch FC101 is incorporated to the steering shaft S103 on the side of the engine ICE101 so to couple to the engine to drive the load when the engine runs at high rpm, and to cut off the linkage to the load when the engine runs at low rpm; the engine ICE101 is either directly or by means of the steering shaft S103 driven by a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104, coupled to the drive draw side of the centrifugal clutch FC101 and the driven draw side of the other centrifugal clutch FC102; meanwhile, the load side steering shaft S104 is coupled to the driven

- draw side of the centrifugal clutch FC101 and the drive draw side of the other centrifugal clutch FC102 so that when the load side steering shaft S104 reaches its preset rpm, the other centrifugal clutch FC102 is closed thus to draw the steering shaft S103 driven by the engine ICE101, or when the steering shaft S103 on the side of the engine ICE101 reaches its preset rpm, the centrifugal clutch FC101 is closed, thus to draw the load side steering shaft S104 to drive the load; as required, the output clutch CL101 is provided at where between the output side of the primary dynamo-electric unit E101 and the fixed speed, or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T103; the output clutch CL101 is controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force while the other units comprising the system are the same as those claimed in Claim 14;
- the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101. The specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.
35. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 34, wherein, the primary dynamo-electric unit is replaced by two independent dynamo-electric units respectively provided on the side

DEPOSITED  
2012 SEP 12 PM  
FBI - WFO

of two output shafts of the differential gear set; the primary dynamo-electric unit E101 claimed in Claim 34 is replaced by a primary dynamo-electric unit E101R to the right and another primary dynamo-electric unit E101L on the left; the primary dynamo-electric unit E101R to the right is directly connected in series with the steering shaft S105R to the right of the differential gear set DG, or alternatively, a one-way or two-way alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105R to the right of the differential gear set DG; the other primary dynamo-electric unit E101L on the left is directly connected in series with a steering shaft S105L to the left of a differential gear set DG or alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105L to the left of the differential gear set DG; the steering shaft S104 on the load side of the centrifugal clutch FC101 is directly outputted to the steering shaft S105 of the differential gear set DG, or through the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103 before being outputted to the steering shaft S105 of the differential gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the steering shaft S105 of the differential gear set DG; both of the primary dynamo-electric unit E101R to the right and the other primary dynamo-electric unit E101L on the left are subject

00000000

to equal speed or differential drive by a drive control device CD101

36. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 31, wherein, a centrifugal the centrifugal clutch FC101 and another clutch CL102 controlled by manual, mechanical, electromagnetic, hydraulic power-locking type of or hydraulic coupling type are provided between the engine steering shaft S103 and the load side steering shaft S104 so to execute power coupling or interruption on both of the engine steering shaft S103 and the load side steering shaft S104 for the system to be equipped with a power-locking type or hydraulic coupling type controllable clutch CL102 and engine throttle, to further acquire another specific function for the engine rotation power driven load; the steering shaft S103 either directly driven by the engine ICE101, or through a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104 is coupled to the drive drawn side of the centrifugal clutch FC101 while the load side steering shaft S104 to the driven draw side of the centrifugal clutch FC101. That is, once the steering shaft S103 on the side of the engine ICE101 reaches the preset rpm, the centrifugal clutch FC101 is forthwith closed to draw the load side steering shaft S104; the centrifugal clutch FC101 and the controllable clutch CL102 is individually provided or sharing the same structure, while the other units comprising the system are the same as those claimed in Claim 31;

the combination of those structures described above for

the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101 and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

- 5
37. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 36, wherein, an output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force is disposed at where between the load side steering S104 driven by the primary dynamo-electric unit E101 and the load. When the output shaft CL101 is closed, it provides the same functions as those claimed in Claim 36; and when it is disengaged, the engine ICE101 simultaneously drives the primary dynamo-electric unit E101 and the secondary dynamo-electric unit E102 to operate as a generator or the primary dynamo-electric unit E101 is driven alone to operate as a generator and also provides additional functions related to those claimed in Claim 1 or other specific function and operation patterns related to those claimed in Claim 2 or other specific operation patterns.
- 10
- 15
- 20
- 25
38. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 37, wherein, the primary dynamo-electric unit in the preferred embodiment taken from Fig. 36 is replaced by two independent dynamo-electric units respectively provided on the side of two output shafts of the differential gear set. Within,
- 30

the primary dynamo-electric unit E101 as claimed in Claim  
37 is replaced by a primary dynamo-electric unit E101R  
to the right and another primary dynamo-electric unit  
E101L on the left; the primary dynamo-electric unit E101R  
5 to the right is directly connected in series with the  
steering shaft S105R to the right of the differential  
gear set DG, or alternatively, a one-way or two-way  
alternatively adapted with a one-way or two-way clutch  
CLU before being connected in series to the steering shaft  
10 S105R to the right of the differential gear set DG; the  
other primary dynamo-electric unit E101L on the left is  
directly connected in series with a steering shaft S105L  
to the left of a differential gear set DG or alternatively  
adapted with a one-way or two-way clutch CLU before being  
connected in series to the steering shaft S105L to the  
15 left of the differential gear set DG; the steering shaft  
S104 on the load side of the centrifugal clutch FC101  
is directly outputted to the steering shaft S105 of the  
differential gear set DG, or through the fixed or variable  
speed ratio or variable steering transmission or  
planetary transmission mechanism T103 before being  
outputted to the steering shaft S105 of the differential  
gear set DG, or alternatively, by means of the output  
20 clutch CL101 controlled by manual, mechanical,  
electromagnetic, hydraulic or centrifugal force before  
being outputted to the steering shaft S105 of the  
differential gear set DG; both of the primary  
dynamo-electric unit E101R to the right and the other  
25 primary dynamo-electric unit E101L on the left are subject  
to equal speed or differential drive by a drive control  
30

device CD101, while providing the same functions as those claimed in Claim 37.

39. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 3, wherein, the system
- 5 is changed to that a one-way transmission mechanism is provided between the steering shaft of the engine incorporated to the driven draw side of the centrifugal clutch and the output shaft incorporated to the drive draw side of the centrifugal clutch; the centrifugal clutch FC101 and the one-way transmission mechanism
- 10 SWC101 selected for steering operation to control the operation of both steering shafts S103 and S104 to couple or interrupt transmission is provided between the steering shaft S103 driven by the engine ICE101 and the load side steering shaft S104; the steering shaft S103 driven by the engine ICE101 is coupled to the driven draw side of the centrifugal clutch FC101 while the load side steering shaft S104 is coupled to the drive draw side of the centrifugal clutch FC101 so that when the load
- 15 side steering shaft S104 reaches its preset rpm, the centrifugal clutch FC101 is forthwith closed, thus to draw the steering shaft S103 either directly driven by the engine ICE101 or via the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104; the load side steering shaft S104 is provided to drive the load and a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T102 may be provided
- 20 on the load side steering shaft S104 to engage mutual transmission with the primary dynamo-electric unit E101
- 25
- 30

[REDACTED]

[REDACTED]

[REDACTED]

while the other units comprising the system are the same  
as those claimed in Claim 3;

the combination of those structures described above for  
the system are subject to control by the manual control  
5 interface M101, the central control unit CCU101, the drive  
control device CD101 and the storage discharging device  
ESD101; the specific system structure described above  
provides functions related to those claimed in Claim 1  
or other specific function, and operation patterns  
10 related to those claimed in Claim 2 or other specific  
operation patterns.

15 40. A drive dynamo-electric unit speed controlled compound  
power system as claimed in Claim 4, wherein, a one-way  
transmission mechanism is provided between the steering  
shaft of the engine incorporated to the driven draw side  
of the centrifugal clutch and the output shaft  
incorporated to the drive draw side of the centrifugal  
clutch, essentially comprised of having the  
double-acting centrifugal clutches FC101 and FC102  
20 connected in series and in sequence between the steering  
shaft S103 and the load side steering shaft S104 of the  
engine ICE101, and on the one-way transmission mechanism  
SWC101 selected for steering operation; the double acting  
centrifugal clutches FC101 and FC102 form to each other  
25 or integrated into a 3-layer structure containing an inner  
layer, an intermediate layer and an outer layer. Within,  
the inner layer and the inner side of the intermediate  
layer form the centrifugal clutch FC101, the inner layer  
incorporated to the load side steering shaft S104 drawn  
30 to each other is provided with a drive power-locking unit

to act outward when the centrifugal force reaches a preset value; the outer side of the intermediate layer and the inner side of the outer layer form the centrifugal clutch FC102; the intermediate layer being coupled to the steering shaft S103 driven by the engine having its inner side provided with circumferential coupling surface for power-locking and its outer side provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; and the outer layer is also incorporated to the load side steering shaft S104 so to provide linkage with the load when the engine runs at low rpm or is temporarily cut off; the steering shaft S103 either directly driven or driven through a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 by the engine is coupled to the driven draw side of the centrifugal clutch FC101 and the load side steering shaft S104 to the drive draw side of the centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the steering shaft S103 driven by the engine ICE101 when the load side steering shaft S104 reaches its preset rpm; alternatively, a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T102 is provided on the load side steering shaft S104 to engage mutual transmission with the primary dynamo-electric unit while the other units

DRAFT EDITION

comprising the system are the same as those claimed in Claim 4;

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101 and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

- 5
- 10
- 15
- 20
- 25
- 30
41. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 5, wherein, a one-way transmission mechanism is provided between the steering shaft of the engine incorporated to the driven draw side of the centrifugal clutch and the output shaft incorporated to the drive draw side of the centrifugal clutch essentially comprised of having the fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T102 as claimed in Claim 40 to be jointly incorporated to the intermediate steering shaft S102 with the coupling surface of the inner circumference of the double-acting centrifugal clutch FC101 for power locking and the coupling surface of the outer circumference of the double-acting centrifugal clutch FC102; the double-acting centrifugal clutches are comprised of two units of centrifugal clutches FC101 and FC102 inserted to each other in a three-layer structure, an inner, an intermediate and an out layers; within, the inner layer

and the inner side of the intermediate layer form the centrifugal clutch FC101. The inner layer incorporated to the intermediate steering shaft S102 drawn to each other is provided with a drive power-locking unit to act outward when the centrifugal force reaches a preset value; the outer side of the intermediate layer and the inner side of the outer layer form the centrifugal clutch FC102; the intermediate layer related to the one-way transmission mechanism SWC101 selected for steering operation is coupled to the steering shaft S103 driven by the engine. The inner side of the intermediate layer is provided with a circumferential coupling surface for power-locking and its outer side is provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; the outer layer is also incorporated to the intermediate steering shaft S104 so to provide linkage with the load when the engine runs at low rpm or is temporarily cut off; the steering shaft S103 either directly driven or driven through a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 by the engine is coupled to the driven draw side of the centrifugal clutch FC101, and the one-way transmission mechanism SWC101 selected for steering operation is provided between the steering shaft S103 and the intermediate shaft S102 while the intermediate shaft S102 is coupled to the drive draw side of the

00002423-4444-00  
P

centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the steering shaft S103 driven by the engine ICE101 when the intermediate steering shaft S102 reaches its preset rpm;

5 - the intermediate steering shaft S102: is directly outputted to the load, or alternatively, to an output clutch CL301 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the load via the load side

10 steering shaft S104; or as required, to execute single shaft output through a fixed speed ratio or variable speed ratio, variable steering transmission or planetary transmission mechanism T103, then through a steering shaft S105; or an optional transmission mechanism comprised of a differential gear set DG for differential output through two units of differential steering shafts S105R and S105L; the additional output clutch CL301is provided between the intermediate steering shaft S102 and the load side steering shaft S104 with both steering shafts driven by the power-locking coupling surfaces on the inner and outer circumferences of the double-acting centrifugal clutches FC101 and FC102 while the other units comprising the system are the same as those claimed in Claim 5;

20

25 the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure

30

described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

- 5       42. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 6, wherein, a one-way transmission mechanism is provided between the steering shaft of the engine incorporated to the driven draw side of the centrifugal clutch and the output shaft
- 10      incorporated to the drive draw side of the centrifugal clutch, essentially comprised of that the primary dynamo-electric unit E101 and the load side steering shaft S104 indicate coaxial structure and the double-acting centrifugal clutches FC101 and FC102 are provided between the dynamo-electric unit E101 and the engine ICE101 with its inner and outer structures to be incorporated to the load side steering shaft S104 incorporated to the output terminal of the primary dynamo-electric unit E101 and its intermediate structure is incorporated to the steering shaft S103 driven by the engine ICE101; the double-acting centrifugal clutches is comprised of two units of centrifugal clutches FC101 and FC102 inserted to each other in a three-layer structure, an inner, an intermediate and an out layers. Within, the inner layer and the inner side of the intermediate layer form the centrifugal clutch FC101; the inner layer incorporated to the load side steering shaft S104 drawn to each other is provided with a drive power-locking unit to act outward when the centrifugal force reaches a preset value. The outer side of the intermediate layer and the inner side
- 15
- 20
- 25
- 30

PCT EP 20030709

of the outer layer form the centrifugal clutch FC102; the intermediate layer related to the one-way transmission mechanism SWC101 selected for steering operation is coupled to the steering shaft S103 driven by the engine; the inner side of the intermediate layer is provided with a circumferential coupling surface for power-locking and its outer side is provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer. The outer layer is also incorporated to the load side steering shaft S104 so to provide linkage with the load when the engine runs at high speed and to cut off the linkage to the load when the engine runs at low speed; the steering shaft S103 either directly driven or driven through a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 by the engine is coupled to the driven draw side of the centrifugal clutch FC101 and the load side steering shaft S103 to the driven draw side of the centrifugal clutch FC101; the one-way transmission mechanism SWC101 selected for steering operation is provided between the steering shaft S103 and the load side steering shaft S104 and the load side steering shaft S104 is incorporated to the drive draw side of the centrifugal clutch FC101 so that once the load side steering shaft S104 reaches its rpm, the centrifugal clutch FC101 is closed thus to draw the steering shaft S103 driven by the engine ICE101; the

output clutch CL101 when required is provided between the output side of the primary dynamo-electric unit E101 and the fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T103; the output clutch CL101 is controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force while the other units comprising the system are the same as those claimed in Claim 6;

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

43. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 42, wherein, the primary dynamo-electric unit is replaced by two independent dynamo-electric units respectively provided on the side of two output shafts of a differential gear set essentially comprised of having the primary dynamo-electric unit E101 as claimed in Claim 42 to be replaced by a primary dynamo-electric unit E101R to the right and another primary dynamo-electric unit E101L on the left; the primary dynamo-electric unit E101R to the right is directly connected in series with the steering shaft S105R to the right of the differential gear set

DG, or alternatively, a one-way or two-way alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105R to the right of the differential gear set DG; the other primary  
5 dynamo-electric unit E101L on the left is directly connected in series with a steering shaft S105L to the left of a differential gear set DG or alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105L to the  
10 left of the differential gear set DG; the steering shaft S104 on the load side of the centrifugal clutch FC101 is directly outputted to the steering shaft S105 of the differential gear set DG, or through the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103 before being outputted to the steering shaft S105 of the differential gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before  
15 being outputted to the steering shaft S105 of the differential gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the steering shaft S105 of the differential gear set DG; both of the primary  
20 dynamo-electric unit E101R to the right and the other primary dynamo-electric unit E101L on the left are subject to equal speed or differential drive by a drive control device CD101.  
25

44. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 39, wherein, the centrifugal clutch FC101 and another clutch CL102 controlled by manual, mechanical, electromagnetic, hydraulic power-locking type of or hydraulic coupling  
30

00022478-0000

type are provided between the engine steering shaft S103 and the load side steering shaft S104 so to execute power coupling or interruption on both of the engine steering shaft S103 and the load side steering shaft S104 for the system to be equipped with a power-locking type or hydraulic coupling type controllable clutch CL102 and engine throttle, to further acquire another specific function for the engine rotation power driven load; the steering shaft S103 either directly driven by the engine ICE101, or through a fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T104 is coupled to the drive drawn side of the centrifugal clutch FC101 while the load side steering shaft S104 to the drive draw side of the centrifugal clutch FC101; once the load-side steering shaft S104 reaches the preset rpm, the centrifugal clutch FC101 is forthwith closed to draw the steering shaft S103 driven by the engine ECE101; the centrifugal clutch FC101 and the controllable clutch CL102 is individually provided or sharing the same structure; and other units comprising the system are the same as those claimed in Claim 39; and  
the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101 and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific

operation patterns.

45. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 44, wherein, an output clutch CL101 controlled by manual, mechanical, electromagnetic, and hydraulic or centrifugal force is provided between the load side steering shaft S104 driven by the primary dynamo-electric unit E101 and the load; when the output clutch CL101 is closed, it provides the same function as those claimed in Claim 44; and additional functions when the output clutch CL101 is disengaged, including being separated from the load to leave the engine to simultaneously drive the first and the second dynamo-electric units E101 and E102 to function as generators, or to drive the primary dynamo-electric E101 alone to operate as a generator while the primary dynamo-electric unit E101 is provided between the output clutch CL101 and the controllable clutch CL102; as well as functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

46. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 45, wherein, the primary dynamo-electric unit replaced by two independent dynamo-electric units respectively provided on the side of two output shafts of a differential gear set, essentially comprised of having the primary dynamo-electric unit E101 as claimed in Claim 45 replaced by a primary dynamo-electric unit E101R to the right and another primary dynamo-electric unit E101L on the left;

the primary dynamo-electric unit E101R to the right is directly connected in series with the steering shaft S105R to the right of the differential gear set DG, or alternatively, a one-way or two-way alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105R to the right of the differential gear set DG; the other primary dynamo-electric unit E101L on the left is directly connected in series with a steering shaft S105L to the left of a differential gear set DG or alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105L to the left of the differential gear set DG; the steering shaft S104 on the load side of the centrifugal clutch FC101 is directly outputted to the steering shaft S105 of the differential gear set DG, or through the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103 before being outputted to the steering shaft S105 of the differential gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the steering shaft S105 of the differential gear set DG; both of the primary dynamo-electric unit E101R to the right and the other primary dynamo-electric unit E101L on the left are subject to equal speed or differential drive by a drive control device CD101 for providing functions same as those claimed in Claim 45.

30 47. A drive dynamo-electric unit speed controlled compound

power system as claimed in Claim 39, wherein, centrifugal  
clutched and the one-way transmission mechanism SWC101  
between the steering shaft S103 and the load side steering  
shaft S104 driven by the engine ICE101 are provided in  
5 opposition direction to function as the drive application  
system; the centrifugal clutch FC101 is provided between  
the steering shaft S103 driven by the engine ICE101 and  
the load side steering shaft S104 to control the operation  
of coupling or interruption the transmission by both of  
10 the steering shafts S103 and S104; the steering shaft  
S103 driven by the engine ICE101 is coupled to the drive  
draw side of the centrifugal clutch FC101 and the load  
side steering shaft S104 is coupled to the driven draw  
side of the centrifugal clutch FC101; the one-way  
15 transmission mechanism SWC 101 is provided between the  
drive steering shaft S103 and the load side steering shaft  
S104 driven by the engine ICE101 so that once the steering  
shaft S103 which is directly driven by the engine ICE101  
or through a fixed speed ratio or variable speed ratio,  
20 or variable steering device or planetary transmission  
mechanism T104 reaches the preset rpm, it drives to close  
the centrifugal clutch FC101, thus to draw the load side  
steering shaft S104; the steering shaft S104 on the load  
side is provided to drive the load, and a fixed speed  
25 ratio or variable speed ratio or variable steering  
transmission mechanism T102 is provided to the steering  
shaft S104 on the load side to engage in mutual  
transmission with a primary dynamo-electric unit E101  
while the other units comprising the system are the same  
as those claimed in Claim 39;

20090422-00000

the combination of those structures described above for  
the system are subject to control by the manual control  
interface M101, the central control unit CCU101, the drive  
control device CD101 and the storage discharging device  
5 ESD101 and the specific system structure described above  
provides functions related to those claimed in Claim 1  
or other specific function, and operation patterns  
related to those claimed in Claim 2 or other specific  
operation patterns.

10 48. A drive dynamo-electric unit speed controlled compound  
power system as claimed in Claim 40, wherein, a drive  
application system the present invention is comprised  
of having the centrifugal clutch to be provided in  
opposite direction and a one-way transmission mechanism  
selected for steering operation, essentially comprised  
15 of having the double-acting centrifugal clutches FC101  
and FC102 to be connected in series between the steering  
shaft S103 and the drive load side steering shaft S104  
of the engine ICE101; the double-acting centrifugal  
clutches FC101 and FC102 form to each other by insertion  
20 or are integrated into a 3-layer structure containing  
an inner layer, an intermediate layer and an outer layer.  
The inner layer and the inner side of the intermediate  
layer form the centrifugal clutch FC101, the inner layer  
incorporated to the steering shaft S103 on the side of  
25 the engine ICE101 drawn to each other is provided with  
a drive power-locking unit to act outward when the  
centrifugal force reaches a preset value; the outer side  
of the intermediate layer and the inner side of the outer  
layer form the centrifugal clutch FC102; the intermediate  
30

CONFIDENTIAL

layer being coupled to the load side steering shaft S104 having its inner side provided with circumferential coupling surface for power-locking and its outer side provided with a drive power-locking unit acting outward when the centrifugal force reaches its preset value performs the functions as an output clutch with the power-locking circumferential coupling surface on the inner side of the outer layer; and the outer layer is also incorporated to the steering shaft S103 on the side of the engine ICE101 so to provide linkage with the load when the engine runs at low rpm or is temporarily cut off; the load side steering shaft S103 either directly driven or driven through a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T104 by the engine is coupled through the one-way transmission mechanism SWC101 selected for steering operation to the drive draw side of the centrifugal clutch FC101 and the load side steering shaft S104 to the driven draw side of the centrifugal clutch FC101 so to forthwith close the centrifugal clutch FC101 and further to draw the load side steering shaft S104 when the load side steering shaft S104 reaches its preset rpm; alternatively, a fixed speed ratio or variable speed ratio, or variable steering transmission mechanism or planetary transmission mechanism T102 is provided on the load side steering shaft S104 to engage mutual transmission with the primary dynamo-electric unit E101; while the other units comprising the system are the same as those claimed in

Claim 40;

the combination of those structures described above for  
the system are subject to control by the manual control  
interface M101, the central control unit CCU101, the drive  
control device CD101 and the storage discharging device  
5 ESD101; and the specific system structure described above  
provides functions related to those claimed in Claim 1  
or other specific function, and operation patterns  
related to those claimed in Claim 2 or other specific  
operation patterns.

- 10 49. A drive dynamo-electric unit speed controlled compound  
power system as claimed in Claim 41, wherein, a drive  
application system is comprised of having the centrifugal  
clutch claimed in Claim 41 to be provided in opposite  
direction and a one-way transmission mechanism selected  
15 for steering operation functioning as the drive control,  
essentially comprised an output clutch CL301 controlled  
by manual, mechanical, electromagnetic or hydraulic  
force to be alternatively provided between the steering  
shaft S103 on the side of the engine ICE101 and the  
20 double-acting centrifugal clutches at where between the  
drive draw side of the centrifugal clutch FC101 and the  
driven draw side of the centrifugal clutch FC102 while  
the other units comprising the system are the same as  
those claimed in Claim 41;
- 25 the combination of those structures described above for  
the system are subject to control by the manual control  
interface M101, the central control unit CCU101, the drive  
control device CD101 and the storage discharging device  
ESD101 and the specific system structure described above  
30 provides same functions same as those claimed in Claim

48 when the output clutch CL301 is closed; and when the  
output clutch CL301 is disengaged, the specific system  
structure described above provides additional functions  
related to those claimed in Claim 1 or other specific  
5 function, and operation patterns related to those claimed  
in Claim 2 or other specific operation patterns.

50. A drive dynamo-electric unit speed controlled compound  
power system as claimed in Claim 42, wherein, a drive  
application system the present invention is comprised  
10 of having the centrifugal clutch to be provided in  
opposite direction and a one-way transmission mechanism  
selected for steering operation to function as the drive  
control; the dynamo-electric unit E101 and the load side  
steering shaft S104 indicate a coaxial structure with  
15 the double-acting centrifugal clutches FC101 and FC102  
provided between the dynamo-electric unit E101 and the  
engine ICE101. The intermediate structure is provided  
to be incorporated to the load side steering shaft S104  
in the same structure of the output shaft of the primary  
20 dynamo-electric unit E101, and its inner and outer layers  
incorporated to the engine steering shaft S103. The  
double acting centrifugal clutches FC101 and FC102 form  
to each other or integrated into a 3-layer structure  
containing an inner layer, an intermediate layer and an  
25 outer layer; within, the inner layer and the inner side  
of the intermediate layer form the centrifugal clutch  
FC101, the inner layer incorporated to the engine steering  
shaft S103 drawn to each other is provided with a drive  
power-locking unit to act outward when the centrifugal  
30 force reaches a preset value; the outer side of the

0000000000000000

intermediate layer and the inner side of the outer layer  
form the centrifugal clutch FC102; the intermediate layer  
being coupled to the steering shaft S103 driven by the  
primary dynamo-electric unit E101 having its inner side  
provided with circumferential coupling surface for  
power-locking and its outer side provided with a drive  
power-locking unit acting outward when the centrifugal  
force reaches its preset value performs the functions  
as an output clutch with the power-locking  
circumferential coupling surface on the inner side of  
the outer layer; the drive draw side of the centrifugal  
clutch FC101 is incorporated to the steering shaft S103  
on the side of the engine ICE101 so to couple to the engine  
to drive the load when the engine runs at high rpm, and  
to cut off the linkage to the load when the engine runs  
at low rpm; the engine ICE101 is either directly or by  
means of the steering shaft S103 driven by a fixed speed  
ratio or variable speed ratio, or variable steering  
transmission mechanism or planetary transmission  
mechanism T104, coupled to the drive draw side of the  
centrifugal clutch FC101 and the driven draw side of the  
other centrifugal clutch FC102; meanwhile, the load side  
steering shaft S104 is coupled to the driven draw side  
of the centrifugal clutch FC101 and the drive draw side  
of the other centrifugal clutch FC102 so that when the  
load side steering shaft S104 reaches its preset rpm,  
the other centrifugal clutch FC102 is closed thus to draw  
the steering shaft S103 driven by the engine ICE101, or  
when the steering shaft S103 on the side of the engine  
ICE101 reaches its preset rpm, the centrifugal clutch

FC101 is closed, thus to draw the load side steering shaft S104 to drive the load; as required, the output clutch CL101 is provided at where between the output side of the primary dynamo-electric unit E101 and the fixed speed, or variable speed ratio or variable steering transmission mechanism or planetary transmission mechanism T103; the output clutch CL101 is controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force while the other units comprising the system are the same as those claimed in Claim 42;

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101 and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

51. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 50, wherein, the primary dynamo-electric unit is further replaced by two individual dynamo-electric units respectively provided on the side of two output shafts of the differential shaft, essentially comprised of having the primary dynamo-electric unit E101 as claimed in Claim 50 to be replaced by a primary dynamo-electric unit E101R to the right and another primary dynamo-electric unit E101L on the left; the primary dynamo-electric unit E101R to the right is directly connected in series with the steering

DE2021000000000000

- shaft S105R to the right of the differential gear set DG, or alternatively, a one-way or two-way alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105R to the right of the differential gear set DG; the other primary dynamo-electric unit E101L on the left is directly connected in series with a steering shaft S105L to the left of a differential gear set DG or alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105L to the left of the differential gear set DG; the steering shaft S104 on the load side of the centrifugal clutch FC101 is directly outputted to the steering shaft S105 of the differential gear set DG, or through the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103 before being outputted to the steering shaft S105 of the differential gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the steering shaft S105 of the differential gear set DG; both of the primary dynamo-electric unit E101R to the right and the other primary dynamo-electric unit E101L on the left are subject to equal speed or differential drive by a drive control device CD101.
52. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 51, wherein, a centrifugal the centrifugal clutch FC101 and another clutch CL102 controlled by manual, mechanical,

electromagnetic, hydraulic power-locking type or  
hydraulic coupling type are provided between the engine  
steering shaft S103 and the load side steering shaft S104  
so to execute power coupling or interruption on both of  
the engine steering shaft S103 and the load side steering  
5 shaft S104 for the system to be equipped with a  
power-locking type or hydraulic coupling type  
controllable clutch CL102 and engine throttle, to further  
acquire another specific function for the engine rotation  
10 power driven load. The steering shaft S103 either  
directly driven by the engine ICE101, or through a fixed  
or variable speed ratio or variable steering transmission  
or planetary transmission mechanism T104 is coupled to  
the drive drawn side of the centrifugal clutch FC101 while  
15 the load side steering shaft S104 to the driven draw side  
of the centrifugal clutch FC101;, once the steering shaft  
S103 on the side of the engine ICE101 reaches the preset  
rpm, the centrifugal clutch FC101 is forthwith closed  
to draw the load side steering shaft S104; the centrifugal  
20 clutch FC101 and the controllable clutch CL102 is  
individually provided or sharing the same structure,  
while the other units comprising the system are the same  
as those claimed in Claim 47;  
the combination of those structures described above for  
25 the system are subject to control by the manual control  
interface M101, the central control unit CCU101, the drive  
control device CD101 and the storage discharging device  
ESD101 and the specific system structure described above  
provides functions related to those claimed in Claim 1  
30 or other specific function, and operation patterns

related to those claimed in Claim 2 or other specific operation patterns.

53. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 52, wherein, an output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force is disposed at where between the load side steering S104 driven by the primary dynamo-electric unit E101 and the load. When the output shaft CL101 is closed, it provides  
10 the same functions as those claimed in Claim 52; and when it is disengaged, the engine ICE101 simultaneously drives the primary dynamo-electric unit E101 and the secondary dynamo-electric unit E102 to operate as a generator or the primary dynamo-electric unit E101 is driven alone  
15 to operate as a generator and also provides additional functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

20 54. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 53, wherein, the primary dynamo-electric unit is replaced by two independent dynamo-electric units respectively provided on the side  
25 of two output shafts of the differential gear set, essentially comprised of the primary dynamo-electric unit E101 beings replaced by a primary dynamo-electric unit E101R to the right and another primary dynamo-electric unit E101L on the left; the primary dynamo-electric unit E101R to the right is directly connected in series with the steering shaft S105R to the  
30

02020247044604

right of the differential gear set DG, or alternatively, a one-way or two-way alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105R to the right of the differential gear set DG; the other primary dynamo-electric unit E101L on the left is directly connected in series with a steering shaft S105L to the left of a differential gear set DG or alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105L to the left of the differential gear set DG; the steering shaft S104 on the load side of the centrifugal clutch FC101 is directly outputted to the steering shaft S105 of the differential gear set DG, or through the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103 before being outputted to the steering shaft S105 of the differential gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the steering shaft S105 of the differential gear set DG; both of the primary dynamo-electric unit E101R to the right and the other primary dynamo-electric unit E101L on the left are subject to equal speed or differential drive by a drive control device CD101, while providing the same functions as those claimed in Claim 53.

55. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 1, related to one by having provided a one-way transmission mechanism as the

. . .

drive control between the load side steering shaft and  
the engine power source; wherein, the one-way  
transmission mechanism SWC101 is provided between the  
steering shaft S103 and the load side steering shaft S104  
5 driven by the engine ICE101; when the rpm of the load  
side steering shaft S104 is higher than that of the  
steering shaft S103 driven directly by the engine ICE101  
or through a fixed speed ratio, variable speed ration  
or variable transmission mechanism or planetary  
10 transmission mechanism T104, the one-way transmission  
mechanism SWC101 is idling without transmitting the  
rotation kinetic energy, and the rpm of the steering shaft  
S103 driven directly by the engine ICE101 or through a  
fixed speed ratio, variable speed ration or variable  
15 transmission mechanism, or planetary transmission  
mechanism T104 is higher than that of the load side  
steering shaft S104, the rotation kinetic energy from  
the steering shaft S103 is transmitted through the one-way  
transmission mechanism SWC101 to the load side steering  
20 shaft S104; the load side steering shaft S104 is provided  
for driving the load and the steering shaft S103 driven  
directly by the engine ICE101 or through a fixed speed  
ratio, variable speed ration or variable transmission  
mechanism or planetary transmission mechanism T102 is  
25 provided on the load side steering shaft S104 to provide  
mutual transmission with the primary dynamo-electric  
unit E101 while the other units comprising the system  
are the same as those claimed in Claim 3;  
the combination of those structures described above for  
30 the system are subject to control by the manual control

interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101 and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

- 5
- 10
- 15
- 20
- 25
- 30
56. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 1, related to one by having provided a one-way transmission mechanism as the drive control between the load side steering shaft and the engine power source; wherein, the one-way transmission mechanism SWC101 and the centrifugal clutch FC102 are provided between the steering shaft S103 and the load side steering shaft S104 driven by the engine ICE101; the steering shaft S103 driven directly by the engine ICE101 or through a fixed speed ratio, variable speed ration or variable transmission mechanism or planetary transmission mechanism T104 is coupled to the drive draw side of the centrifugal clutch FC102 and the load side steering shaft S104 is couple to the driven draw side of the centrifugal clutch FC102 so that when the rpm of the load side steering shaft S104 is higher than that of the steering shaft S103 driven by the fixed speed ratio, variable speed ration or variable transmission mechanism or planetary transmission mechanism T104, the one-way transmission mechanism SWC101 is idling without transmitting rotation kinetic energy, and the rpm of the steering shaft S103 driven directly by the engine ICE101 or through a fixed speed

C09221470-A-01-0004

0000000000000000

- ratio, variable speed ration or variable transmission mechanism, or planetary transmission mechanism T104 is higher than that of the load side steering shaft S104, the rotation kinetic energy from the steering shaft S103 is transmitted through the one-way transmission mechanism SWC101 to the load side steering shaft S104; when the steering shaft S103 directly driven by engine ICE101 or through the fixed speed ratio, variable speed ration or variable transmission mechanism or planetary transmission mechanism T104 reaches its preset rpm, the centrifugal clutch FC102 is forthwith closed to draw the load side steering shaft S104. Alternatively, the fixed speed ratio, variable speed ration or variable transmission mechanism or planetary transmission mechanism T102 is provided on the load side steering shaft S104 to provide mutual transmission with the primary dynamo-electric unit E101 while the other units comprising the system are the same as those claimed in Claim 4;
- the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101 and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.
57. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 1, related to one by

DRAFT - 2008

having provided a one-way transmission mechanism as the  
drive control between the load side steering shaft and  
the engine power source; wherein, the fixed speed ratio,  
variable speed ration or variable transmission mechanism  
or planetary transmission mechanism T102 as claimed in  
Claim 56 is jointly incorporated to the intermediate  
steering shaft S102 with the coupling surface on the outer  
circumference on the driven draw side of the centrifugal  
clutch FC102; its intermediate layer is provided with  
a drive power-locking unit acting outward when the  
centrifugal force reaches its preset value; the  
intermediate layer is coupled to the steering shaft S103  
driven by the engine ICE101, and the one-way transmission  
mechanism SWC101 selected for steering operation is  
provided in the inner side to be coupled to the  
intermediate steering shaft S102 so to cut off the linkage  
to the load when the engine stops or runs at low rpm;  
the steering shaft S103 directly driven or through the  
fixed speed ratio, variable speed ration or variable  
transmission mechanism or planetary transmission  
mechanism T104 is incorporated to the drive draw side  
of the centrifugal clutch FC102 and the intermediate  
steering shaft S102 is coupled to the driven draw side  
of the centrifugal clutch FC102 so that once the rpm of  
the intermediate steering shaft S102 is higher than the  
steering shaft S103 directly driven or through the fixed  
speed ratio, variable speed ration or variable  
transmission mechanism or planetary transmission  
mechanism T104, the one-way transmission mechanism  
SWC101 is idling without transmitting rotation kinetic

PCT EP00260

energy, and the rpm of the steering shaft S103 driven directly by the engine ICE101 or through a fixed speed ratio, variable speed ration or variable transmission mechanism, or planetary transmission mechanism T104 is higher than that of the load side steering shaft S104, the rotation kinetic energy from the steering shaft S103 is transmitted through the one-way transmission mechanism SWC101 to the intermediate steering shaft S102; the intermediate steering shaft S102 is directly outputted to the load, or alternatively via the load side steering shaft S104 before being outputted to the load by means of an optional output clutch CL301 controlled by manual, mechanical, electromagnetic, or hydraulic force; or alternatively, via the steering shaft S105 for single axial output by means of the fixed speed ratio, variable speed ration or variable transmission mechanism or planetary transmission mechanism T102; or alternatively, through two units of differential steering shafts S105R and S105L for differential output by means of the transmission mechanism comprised of the differential gear set DG; the optional output clutch CL301 may be provided at where between the intermediate steering shaft S102 drawn by the power-locking coupling surface on the outer circumference of the centrifugal clutch FC102 and the load side steering shaft S104;

- the intermediate steering shaft S102: is directly outputted to the load, or alternatively, to an output clutch CL301 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the load; or as required,

000000000000000000000000

to execute single shaft output through a fixed speed ratio or variable speed ratio, variable steering transmission or planetary transmission mechanism T103, then through a steering shaft S105; or an optional transmission mechanism comprised of a differential gear set DG for differential output through two units of differential steering shafts S105R and S105L; the additional output clutch CL301 is provided between the intermediate steering shaft S102 and the load side steering shaft S104 with both steering shafts driven by the power-locking coupling surfaces on the inner and outer circumferences of the double-acting centrifugal clutches FC101 and FC102 while the other unit comprising the system are the same with those claimed in Claim 5;

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; the specific system structure described above provides functions same as those claimed in Claim 56 when the output clutch CL301 is closed; and when the output clutch CL301 is disengaged, it provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

58. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 1, wherein, an application system that provides a one-way transmission mechanism between the load side steering shaft and the

P000000000000000000000000

engine power source; essentially comprised of the dynamo-electric unit E101 and the load side steering shaft S104 indicate a coaxial structure and the centrifugal clutch FC102 is provided between the primary dynamo-electric unit E101 and the engine ICE101; the driven draw side of the centrifugal clutch FC102 is incorporated to the load side steering shaft S104 coupled to the output shaft of the primary dynamo-electric unit E101 and the drive draw side of the centrifugal clutch FC102 is coupled to the steering shaft S103 driven by the engine ICE101.; the one-way transmission mechanism SWC101 selected for steering operation is provided between the steering shaft S103 and the load side steering shaft S104; the drive draw side is provided with drive power-locking unit acting outward once the centrifugal force reaches its preset value thus to provide the function of an output clutch jointly with the inner circumference coupling surface for power-locking on the driven draw side; the engine ICE101 is directly incorporated or through the steering shaft S103 driven by the fixed speed ratio, variable speed ratio or variable transmission mechanism or planetary transmission mechanism T104, to the drive draw side of the centrifugal clutch FC101 while the load side steering shaft S104 is incorporated to the driven draw side of the centrifugal clutch FC101 so that once the rpm of the steering shaft S103 driven by the engine ICE101 is higher than that of the load side steering shaft S104, rotation kinetic energy from the engine ICE101 drives the load side steering shaft S104 by means of the transmission from the one-way

DRAFT DRAFT DRAFT

transmission mechanism SWC101, or when the steering shaft S103 driven by the engine ICE101 reaches its preset rpm, the centrifugal clutch FC102 is closed to couple the engine ICE101 and the load side steering side S104; as required, the output clutch CL101 is provided between the output side of the primary dynamo-electric unit E101 and the fixed speed ratio, variable speed ratio, variable steering transmission mechanism or planetary transmission mechanism T103; the output clutch CL101 is controlled by manual, mechanism, electromagnetic, hydraulic or centrifugal force while the other units comprising the system are the same as those claimed in Claim 6;

the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101; the specific system structure described above provides functions related to those claim in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.

59. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 58, wherein, the primary dynamo-electric unit as claimed in Claim 58 is replaced by two independent dynamo-electric units respectively provided on the side of two output shafts of the differential gear set, essentially comprised of the primary dynamo-electric unit E101 being replaced by a primary dynamo-electric unit E101R to the right and

CONFIDENTIAL

another primary dynamo-electric unit E101L on the left; the primary dynamo-electric unit E101R to the right is directly connected in series with the steering shaft S105R to the right of the differential gear set DG, or alternatively, a one-way or two-way alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105R to the right of the differential gear set DG; the other primary dynamo-electric unit E101L on the left is directly connected in series with a steering shaft S105L to the left of a differential gear set DG or alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105L to the left of the differential gear set DG; the load side steering shaft S104 coaxial with the primary dynamo-electric unit E101 driven by the controllable clutch CL102 is directly outputted to the steering shaft S105 of the differential gear set DG, or through the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103 before being outputted to the steering shaft S105 of the differential gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the steering shaft S105 of the differential gear set DG; both of the primary dynamo-electric unit E101R to the right and the other primary dynamo-electric unit E101L on the left are subject to equal speed or differential drive by a drive control device CD101.

60. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 55, wherein, a power-locking type or hydraulic coupling type controllable clutch CL102 by manual, mechanical, electromagnetic or hydraulic force, and the one-way transmission mechanism SWC101 selected for steering operation are provided between the engine steering shaft S103 and the load side steering shaft S104 so to execute power coupling or interruption on both of the engine steering shaft S103 and the load side steering shaft S104; in turn, the system is provided with power-locking or hydraulic coupling type controllable clutch CL102 and the engine throttle to obtain another specific function of the load driven by the rotation power from the engine so that when the rpm of the load side steering shaft S104 is higher than that of the steering shaft S103 driven by the engine ICE101 and the one-way transmission mechanism SWC101 is idling, or the rpm of the steering shaft S103 is higher than that of the load side steering shaft S104, the engine ICE101 drives the output steering shaft S104 while the other units comprising the system are the same as those claimed in Claim 55; the combination of those structures described above for the system are subject to control by the manual control interface M101, the central control unit CCU101, the drive control device CD101 and the storage discharging device ESD101 and the specific system structure described above provides functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific

operation patterns.

61. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 60, wherein, that the preferred embodiment taken from Fig. 59 of the present invention is provided with an output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force. The output clutch CL101 is provided between the load side steering shaft S104 driven by the primary dynamo-electric unit E101 and the load. When the output clutch CL101 is closed, it provides same functions as those claimed in Claim 60; when the output clutch CL101 is disengaged, it provides additional functions including that it is separated from the load and leaves the engine ICE101 to simultaneously drive both of the primary dynamo-electric unit and the secondary dynamo-electric unit E102 to operate as a generator, or the primary dynamo-electric unit E101 is driven alone to operate as a generator, and functions related to those claimed in Claim 1 or other specific function, and operation patterns related to those claimed in Claim 2 or other specific operation patterns.
62. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 61, wherein, the primary dynamo-electric unit is replaced by two independent dynamo-electric units respectively provided on the side of two output shafts of the differential gear set; essentially comprised of having the primary dynamo-electric unit E101 as claimed in Claim 61 to be replaced by a primary dynamo-electric unit E101R to the right and another primary dynamo-electric unit E101L on

00022784

the left; the primary dynamo-electric unit E101R to the right is directly connected in series with the steering shaft S105R to the right of the differential gear set DG, or alternatively, a one-way or two-way alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105R to the right of the differential gear set DG; the other primary dynamo-electric unit E101L on the left is directly connected in series with a steering shaft S105L to the left of a differential gear set DG or alternatively adapted with a one-way or two-way clutch CLU before being connected in series to the steering shaft S105L to the left of the differential gear set DG; the load side steering shaft S104 coaxial with the primary dynamo-electric unit E101 driven by the controllable clutch CL102 is directly outputted to the steering shaft S105 of the differential gear set DG, or through the fixed or variable speed ratio or variable steering transmission or planetary transmission mechanism T103 before being outputted to the steering shaft S105 of the differential gear set DG, or alternatively, by means of the output clutch CL101 controlled by manual, mechanical, electromagnetic, hydraulic or centrifugal force before being outputted to the steering shaft S105 of the differential gear set DG. Both of the primary dynamo-electric unit E101R to the right and the other primary dynamo-electric unit E101L on the left are subject to equal speed or differential drive by a drive control device CD101 having the same functions as those claimed in Claim 61.

63. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 3~10, 23~62, wherein, the load is driven by the output directly from the steering shaft S103 or via the variable steering or planetary transmission mechanism T104 with fixed or variable speed ratio; and the originally disclosed load side steering shaft S104 is provided to directly coupled or through the variable steering or planetary transmission mechanism T102 with fixed or variable speed ratio, to the primary dynamo-electric unit E101. Meanwhile, the output clutch Cl101 driven by the load side steering shaft S104, the variable steering or planetary transmission mechanism T103 with fixed or variable speed ratio, and the load side device of the differential gear set DG can be all or partially reserved or removed.

64. A drive dynamo-electric unit speed controlled compound power system as claimed in Claim 3~62, wherein, the load is driven by the output directly from the steering shaft S103 or via the variable steering or planetary transmission mechanism T104 with fixed or variable speed ratio and the primary dynamo-electric unit E101 driven by the engine ICE101 operates as a generator; or the electric energy generated by the secondary dynamo-electric unit E102 driven directly by the electric energy from the storage discharging ESD101 or from the engine or via the load is driven by the output directly from the steering shaft S103 or via the variable steering or planetary transmission mechanism T101 with fixed or variable speed ratio is controlled by the manual control interface M101, the central control unit CCU101, the drive

control device CD101 for the primary dynamo-electric unit E101 to operate as a motor, thus to start the engine ECE101, or drive only the load with or without the engine ICE101.